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ABSTRACT

This book is designed to help advanced placement students better understand macroeconomic concepts through various activities. The book contains 6 units with 64 activities, sample multiple-choice questions, sample short essay questions, and sample long essay questions. The units are entitled: (1) "Basic Economic Concepts"; (2) "Measuring Economic Performance"; (3) "Aggregate Demand and Aggregate Supply: Fluctuations of Outputs and Prices"; (4) "Money, Monetary Policy, and Economic Stability"; (5) "Monetary and Fiscal Combinations: Economic Policy in the Real World"; and (6) "The United States in a Global Economy." (EH)

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ADVANCED PLACEMENT ECONOMICS

MACROECONOMICS: STUDENT ACTIVITIES

John S. Morton

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ADVANCED PLACEMENT ECONOMICS

MACROECONOMICS: STUDENT ACTIVITIES

John S. Morton

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National Council on Economic Education
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Macroeconomics

Unit 1
Basic Economic Concepts

8

Key Ideas

- Scarcity exists because we have limited resources and unlimited wants. No society has ever had enough resources to produce all the goods and services its members wanted.
- Because of scarcity, there are no decisions free of costs.
- Opportunity cost is the forgone benefit of the next best alternative when resources are used for one purpose rather than another.
- A production possibilities curve graphically illustrates scarcity, choices, and opportunity costs.
- In a market system, resources are allocated in response to prices.
- A demand curve is all the prices and quantities at which consumers wish to purchase a good or service. The law of demand states that consumers will want to buy more at a lower price and less at a higher price.
- There is a difference between a change in demand and a change in quantity demanded. A change in quantity demanded is a movement along the demand curve and can be caused only by a change in the price of the good or service. At a lower price, a greater quantity is demanded. A change in demand is a shift in the curve whereby more or less is demanded at every price. Changes in preferences, incomes, population, or the prices of complementary or substitute goods will cause a change in demand.
- A supply curve is all the prices and quantities at which producers are willing to sell a good or service. Producers want to sell more at a higher price and less at a lower price.
- There is a difference between a change in supply and a change in quantity supplied. A change in quantity supplied is a movement along the supply curve and can be caused only by a change in the price of the good or service. At a lower price, a lesser quantity is supplied. A change in supply is a shift of the curve whereby more or less is supplied at every price. A change in technology or in production costs will cause a change in supply.
- In competitive markets, supply and demand constitute the sum of many individual decisions to sell and buy. The interaction of supply and demand determines the price and quantity that will clear the market. This price is where the quantity supplied and quantity demanded are equal. It is called the equilibrium or market-clearing price.
- Equilibrium prices and quantities are determined as follows: At a price higher than equilibrium, there is a surplus and pressure on sellers to lower their prices. At a price lower than equilibrium, there is a shortage and pressure on buyers to offer higher prices.
- In a market economy, prices provide information, allocate resources, and act as rationing devices. It is important to know how to illustrate a wide range of situations with supply and demand graphs.

ACTIVITY 1

Scarcity, Opportunity Cost, and Production Possibilities Curves

Scarcity necessitates choice. More of one thing means less of something else. The opportunity cost of using scarce resources for one thing instead of something else is often represented in graphical form as a production possibilities curve.

Part A.
Use *Production Possibilities Curves 1-3* to answer questions 1, 2, and 3. Fill in the answer blanks or cross out the incorrect words in parentheses.

Production Possibilities Curve 1

1. The economy represented in *Production Possibilities Curve 1* is currently producing 12 units of Good B and zero units of Good A. Therefore:

   a. The opportunity cost of increasing production of Good A from zero units to one unit is the loss of _____ unit(s) of Good B.

   b. The opportunity cost of increasing production of Good A from one unit to two units is the loss of _____ unit(s) of Good B.

   c. The opportunity cost of increasing production of Good A from two units to three units is the loss of _____ unit(s) of Good B.

   d. This is an example of *(constant/increasing/decreasing/zero)* opportunity cost for Good A.

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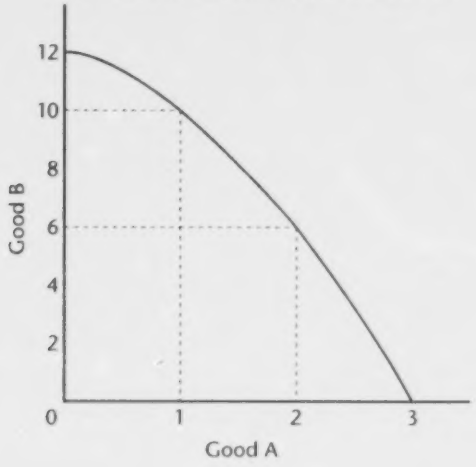
ACTIVITY 1 continued

Production Possibilities Curve 2



2. The economy represented in *Production Possibilities Curve 2* is currently producing 12 units of Good B and zero units of Good A. Therefore:

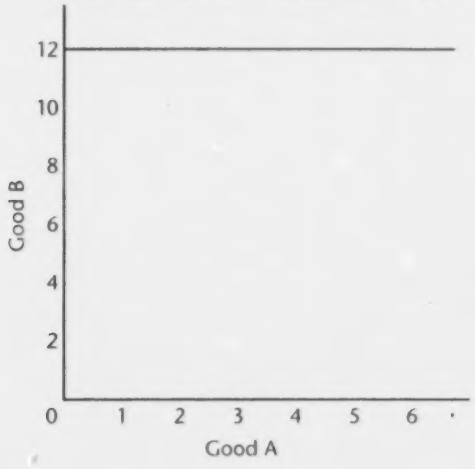
   a. The opportunity cost of increasing production of Good A from zero units to one unit is the loss of _____ unit(s) of Good B.

   b. The opportunity cost of increasing production of Good A from one unit to two units is the loss of _____ unit(s) of Good B.

   c. The opportunity cost of increasing production of Good A from two units to three units is the loss of _____ unit(s) of Good B.

   d. This is an example of *(constant/increasing/decreasing/zero)* opportunity cost for Good A.

Production Possibilities Curve 3



ACTIVITY 1 continued

3. The economy represented in *Production Possibilities Curve 3* is currently producing 12 units of Good B and zero units of Good A. Therefore:

   a. The opportunity cost of increasing production of Good A from zero units to one unit is the loss of _____ unit(s) of Good B.

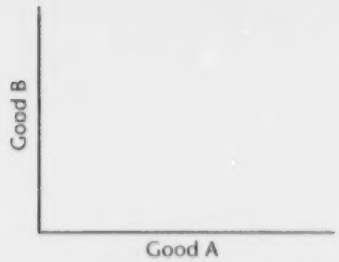
   b. The opportunity cost of increasing production of Good A from one unit to two units is the loss of _____ unit(s) of Good B.

   c. The opportunity cost of increasing production of Good A from two units to three units is the loss of _____ unit(s) of Good B.

   d. This is an example of *(constant/increasing/decreasing/zero)* opportunity cost for Good A.

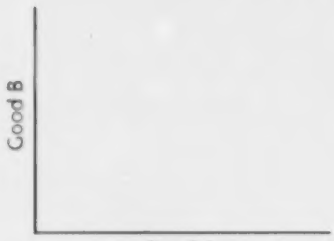
Part B.
Use the axes for *Production Possibilities Curves 4, 5,* and *6* to draw in the type of curve that illustrates the labels given below each axis.

Production Possibilities Curve 4



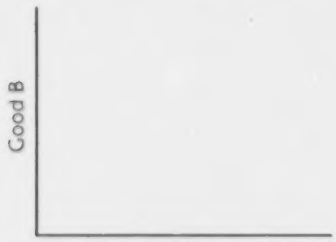
Increasing Opportunity Cost of Good B

Production Possibilities Curve 5



Zero Opportunity Cost of Good B (Good B is a free good)

Production Possibilities Curve 6

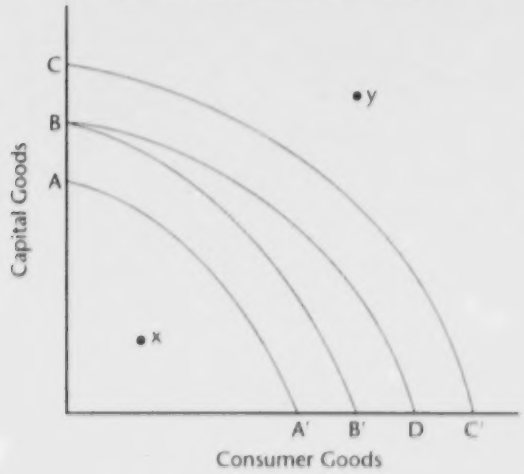


Constant Opportunity Cost of Good B

ACTIVITY 1 continued

Part C.
Study *Production Possibilities Curve 7* and use it to answer each of the questions that follow.

Production Possibilities Curve 7



1. If BB′ represents a country's current production possibilities curve, which would be its production possibilities curve if there were a major technological breakthrough in the consumer goods industry and the new technology were widely adopted? (Indicate the curve you choose with two letters.) _____

2. If BB′ represents a country's current production possibilities curve, which would be its production possibilities curve if a new government that came into power forbade the use of automated machinery and modern production techniques in all industries? (Indicate the curve you choose with two letters.) _____

3. If BB′ represents a country's current production possibilities curve, which would be its production possibilities curve if massive new sources of oil and coal were found within the economy and if there were major technological innovations in both sectors of the economy? (Indicate the curve you choose with two letters.) _____

4. If BB′ represents a country's current production possibilities frontier, what conclusions can be drawn about the location of point *x*? (Write a brief statement.)

5. If BB′ represents a country's current production possibilities frontier, what can you say about a point like *y*? (Write a brief statement.)

ACTIVITY 2

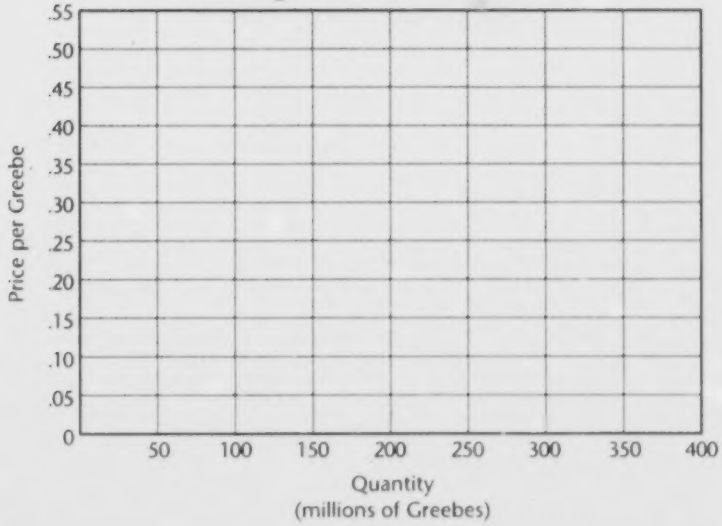
Demand Curves, Moves Along Demand Curves, and Shifts in Demand Curves

Part A.
The table *Demand for Greebes* shows the market demand for Greebes, a hypothetical product introduced to spare you the confusion of real-world associations. Study the data in the table, and plot the demand for Greebes on *Plotting Demand for Greebes*. Label the demand curve *D*, and answer the questions that follow.

Demand for Greebes

Price ($ per Greebe)	Quantity demanded (millions of Greebes)
$.10	350
.15	300
.20	250
.25	200
.30	150
.35	100
.40	50

Plotting Demand for Greebes



Fill in the answer blanks or cross out the incorrect words in parentheses.

1. The data for demand curve *D* indicate that at a price of $.30 per Greebe, buyers would be willing to buy _____ million Greebes. Other things constant, if the price of Greebes increased to $.40 per Greebe, buyers would be willing to buy _____ million Greebes. Such a change would be a decrease in *(demand/quantity demanded)*. Other things constant, if the price of Greebes decreased to $.20, buyers would be willing to buy _____ million Greebes. Such a change would be called an increase in *(demand/quantity demanded)*.

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ACTIVITY 2 continued

2. Now, to take another example, let's suppose that there is a dramatic increase in federal income tax rates that reduces the disposable income of Greebe buyers. This change in the *ceteris paribus** conditions underlying the original demand for Greebes will result in a decrease in demand, and we would have a new set of data, such as that shown in the table *Decrease in Demand for Greebes*. Study the data in the new table, and plot the new demand curve for Greebes on *Plotting Demand for Greebes*. Label the new demand curve D_1 and answer the questions that follow.

Decrease in Demand for Greebes

Price ($ per Greebe)	Quantity demanded (millions of Greebes)
$.05	300
.10	250
.15	200
.20	150
.25	100
.30	50

3. Comparing the new demand curve (D_1) with the old demand curve (D), we can say that a decrease in the demand for Greebes results in a shift of the demand curve to the *(right/left)*. Such a shift indicates that at each of the possible prices shown, buyers are now willing to buy a *(smaller/larger)* quantity, and at each of the possible quantities shown, buyers are willing to offer a *(higher/lower)* maximum price.

4. Now, let's suppose that there is a dramatic increase in people's "taste" for Greebes. This change in the *ceteris paribus* conditions underlying the original demand for Greebes will result in an increase in demand, and we would have a new set of data, such as that shown in the table *Increase in Demand for Greebes*. Study the data in the new table, and plot this demand for Greebes on the graph *Plotting Demand for Greebes*. Label the new demand curve D_2 and answer the questions that follow.

Increase in Demand for Greebes

Price ($ per Greebe)	Quantity demanded (millions of Greebes)
$.20	350
.25	300
.30	250
.35	200
.40	150
.45	100
.50	50

5. Comparing the new demand curve (D_2) with the old demand curve (D), we can say that an increase in the demand for Greebes results in a shift of the demand curve to the *(right/left)*. Such a shift indicates that at each of the possible prices shown, buyers are now willing to buy a *(smaller/larger)* quantity, and at each of the possible quantities shown, buyers are willing to offer a *(higher/lower)* maximum price.

* *ceteris paribus* means "other things being equal."

ACTIVITY 2 continued

Part B.
Now, the dog work over, see if you have the point by circling the letter of the answer you think is the one best alternative in each of the following multiple-choice questions.

1. Other things constant, which of the following would *not* cause a change in the demand (shift in the demand curve) for mopeds?

   a. A decrease in consumer incomes.

   b. A decrease in the price of mopeds.

   c. An increase in the price of bicycles.

   d. An increase in people's tastes for mopeds.

2. "Rising oil prices have caused a sharp decrease in the demand for oil." Speaking precisely, and using terms as they are defined by economists, choose the statement that best describes this quotation:

   a. The quotation is correct—an increase in price always causes a decrease in "demand."

   b. The quotation is incorrect—an increase in price always causes an increase in "demand" not a decrease in "demand."

   c. The quotation is incorrect—an increase in price causes a decrease in the "quantity demanded" not a decrease in "demand."

   d. The quotation is incorrect—an increase in price causes an increase in the "quantity demanded" not a decrease in "demand."

3. "As the price of domestic automobiles has inched upward, customers have found foreign autos to be a better bargain. Consequently, domestic auto sales have been slipping and foreign auto sales have been moving briskly." Using only the information in this quotation, and assuming everything else constant, which of the following best describes this statement?

   a. A shift in the demand curves for both domestic and foreign automobiles.

   b. A movement along the demand curves for both foreign and domestic automobiles.

   c. A movement along the demand curve for domestic autos and a shift in the demand curve for foreign autos.

   d. A shift in the demand curve for domestic autos and a movement along the demand curve for foreign autos.

ACTIVITY 2 continued

4. A fellow student is heard to say the following: "Economic markets are like a perpetual seesaw. If demand rises, the price rises; if price rises, then demand will fall; if demand falls, price will fall; if price falls, demand will rise... and so on forever." Dispel your friend's obvious confusion (in no more than one short paragraph) below.

ACTIVITY 3

Supply Curves, Moves Along Supply Curves, and Shifts in Supply Curves

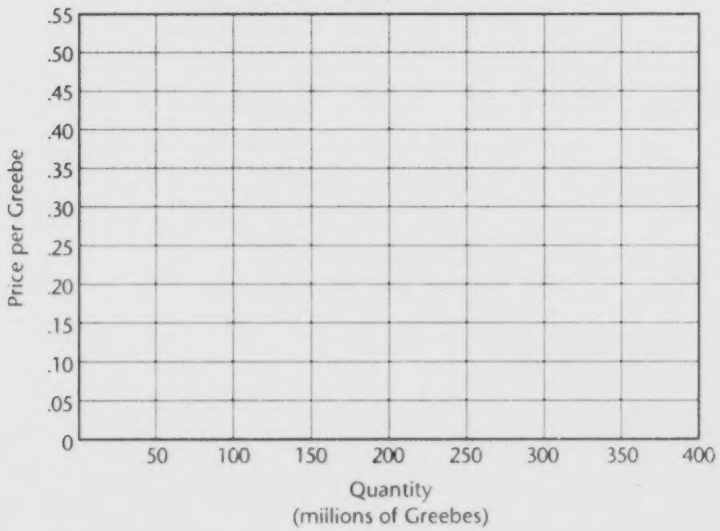
Long-run competitive market supply curves usually slope "up to the right," but not always. If each firm in the market could expand its output with a constant marginal cost, and if new firms could enter the market with exactly the same costs as the firms already in the market, the long-run supply curve would be a "perfectly elastic" horizontal line. But this is not likely in very many cases. Typically, firms in a competitive market experience increases in their marginal costs as output expands beyond a certain point, and firms entering a competitive market as price rises usually have higher costs than firms already in the market at lower prices. (If marginal cost continues to fall as output expands, only one firm would ever be in the market and, by definition, there could not be a competitive market supply curve.)

In this problem, we will assume that the long-run supply curve for Greebes is "typically" "upward sloping." Study the data in the table, *Supply of Greebes*, and plot the supply of Greebes on the graph *Plotting Supply of Greebes*. Label the supply curve *S*, and answer the questions that follow.

Supply of Greebes

Price ($ per Greebe)	Quantity supplied (millions of Greebes)
$.15	100
.20	150
.25	200
.30	250
.35	300

Plotting Supply of Greebes



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ACTIVITY 3 continued

Part A.
Fill in the answer blanks or cross out the incorrect words in parentheses.

The data for supply curve *S* indicate that at a price of $.25 per Greebe, suppliers would be willing to offer _____ million Greebes. Other things constant, if the price of Greebes increased to $.30 per Greebe, suppliers would be willing to offer _____ million Greebes. Such a change would be an increase in *(supply/quantity supplied)*. Other things constant, if the price of Greebes decreased to $.20 per Greebe, suppliers would be willing to offer _____ million Greebes. Such a change would be called a decrease in *(supply/quantity supplied)*.

Now let's suppose that there is a dramatic increase in the price of several of the raw materials used in making Greebes. This change in the *ceteris paribus* conditions underlying the original supply of Greebes will result in a decrease in supply, and we would have a new set of data, such as that shown in the table *Decrease in Supply of Greebes*. Study the data in the new table, and plot this supply of Greebes on *Plotting Supply of Greebes*. Label the new supply curve S_1 and answer the questions that follow.

Decrease in Supply of Greebes

Price ($ per Greebe)	Quantity supplied (millions of Greebes)
$.20	50
.25	100
.30	150
.35	200
.40	250

Comparing the new supply curve (S_1) with the old supply curve (S), we can say that a decrease in the supply of Greebes results in a shift of the supply curve to the *(right/left)*. Such a shift indicates that at each of the possible prices shown, suppliers are now willing to offer a *(smaller/larger)* quantity, and at each of the possible quantities shown, suppliers are willing to accept a *(higher/lower)* minimum price.

Now, to take another example, let's suppose that there is a dramatic decrease in the price of several of the raw materials used in making Greebes. This change in the *ceteris paribus* conditions underlying the original supply of Greebes will result in an increase in supply, and we would have a new set of data, such as that shown in the table *Increase in Supply of Greebes*. Study the data in the new table, and plot this supply of Greebes on *Plotting Supply of Greebes*. Label the new supply curve S_2 and answer the questions that follow.

Increase in Supply of Greebes

Price ($ per Greebe)	Quantity supplied (millions of Greebes)
$.10	150
.15	200
.20	250
.25	300
.30	350

ACTIVITY 3 continued

Comparing the new supply curve (S_2) with the old supply curve (S), we can say that an increase in the supply of Greebes results in a shift of the supply curve to the *(right/left)*. Such a shift indicates that at each of the possible prices shown, suppliers are now willing to offer a *(smaller/larger)* quantity, and at each of the possible quantities shown, suppliers are willing to accept a *(higher/lower)* minimum price.

Part B.
Now, the dog work over, see if you have the point by circling the letter of the answer you think is the one best alternative in each of the following multiple-choice questions.

1. Other things constant, which of the following would *not* cause a change in the long-run supply of beef?

   a. A decrease in the price of beef.

   b. A decrease in the price of cattle feed.

   c. An increase in the price of cattle feed.

   d. An increase in the cost of transporting cattle to market.

2. "Falling oil prices have caused a sharp decrease in the supply of oil." Speaking precisely, and using terms as they are defined by economists, choose the statement that best describes the quotation.

   a. The quotation is correct—a decrease in price always causes a decrease in "supply."

   b. The quotation is incorrect—a decrease in price always causes an increase in "supply," not a decrease in "supply."

   c. The quotation is incorrect—a decrease in price causes an increase in the "quantity supplied," not a decrease in "supply."

   d. The quotation is incorrect—a decrease in price causes a decrease in the "quantity supplied," not a decrease in "supply."

ACTIVITY 4

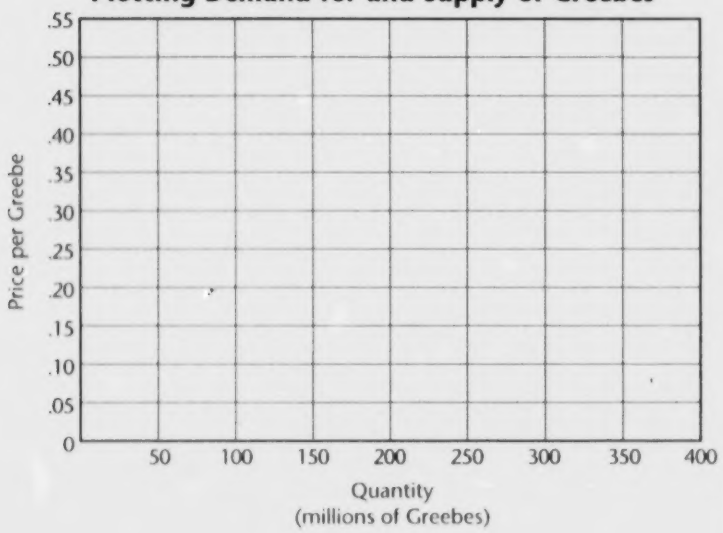
Equilibrium Prices and Equilibrium Quantities

The table *Demand for and Supply of Greebes* shows the demand for Greebes and the supply of Greebes. Plot these data on the graph *Plotting Demand for and Supply of Greebes*. Label the demand curve *D*, and label the supply curve *S*. Then answer the questions that follow.

Demand for and Supply of Greebes

Price ($ per Greebe)	Quantity Demanded (millions of Greebes)	Quantity Supplied (millions of Greebes)
$.15	300	100
.20	250	150
.25	200	200
.30	150	250
.35	100	300

Plotting Demand for and Supply of Greebes



Part A.

Fill in the answer blanks or cross out the incorrect words in parentheses.

1. Under these conditions, competitive market forces would tend to establish an equilibrium price of $ _____ per Greebe and an equilibrium quantity of _____ million Greebes.

2. If the price currently prevailing on the market is $.30 per Greebe, buyers would want to buy _____ million Greebes, and sellers would want to sell _____ million Greebes. Under these conditions, competitive market forces would tend to cause the price to *(rise/fall)* to a price of $ _____ per Greebe. And at this new price, buyers would now want to buy _____ million Greebes, and sellers would now want to sell _____ million Greebes. Due to this change in *(price/underlying conditions)*, the *(demand/quantity demanded)* changed by _____ million Greebes, and the *(supply/quantity supplied)* changed by _____ million Greebes.

Adapted from Phillip Saunders, *Introduction to Macroeconomics: Student Workbook*, Fifteenth edition, Bloomington, IN, 1993.
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ACTIVITY 4 continued

3. If the price currently prevailing on the market is $.20 per Greebe, buyers would want to buy _____ million Greebes, and sellers would want to sell _____ million Greebes. Under these conditions, competitive market forces would tend to cause the price to *(rise/fall)* to a price of $ _____ per Greebe. And at this new price, buyers would now want to buy _____ million Greebes, and sellers would now want to sell _____ million Greebes. Due to this change in *(price/underlying conditions)*, the *(demand/quantity demanded)* changed by _____ million Greebes, and the *(supply/quantity supplied)* changed by _____ million Greebes.

4. Now, suppose that a mysterious blight causes the supply schedule for Greebes to change to the following:

New Supply Schedule for Greebes

Price ($ per Greebe)	Quantity Supplied (millions of Greebes)
$.20	50
.25	100
.30	150
.35	200

Plot the new supply schedule on the graph *Plotting Demand for and Supply of Greebes* and label it S_1. Under these conditions, competitive market forces would tend to establish an equilibrium price of $ _____ per Greebe and an equilibrium quantity of _____ million Greebes. Compared to the equilibrium price for question 1, we say that, due to this change in *(price/underlying conditions)*, the *(supply/quantity supplied)* changed, and both the equilibrium price and the equilibrium quantity changed. The equilibrium price *(rose/fell)* and the equilibrium quantity *(rose/fell)*.

5. Now with the supply schedule at S_1, suppose further that a sharp drop in people's incomes as the result of a nationwide depression causes the demand schedule to change to the following:

New Demand Schedule for Greebes

Price ($ per Greebe)	Quantity Demanded (millions of Greebes)
$.15	200
.20	150
.25	100
.30	50

ACTIVITY 4 continued

Plot the new demand schedule on the graph *Plotting Demand for and Supply of Greebes* and label it D_1. Under these conditions, with the supply schedule at S_1, competitive market forces would tend to establish an equilibrium price of $ _____ per Greebe and an equilibrium quantity of _____ million Greebes. Compared to the equilibrium price in question 4, due to this change in *(price/underlying conditions)*, the *(demand/quantity demanded)* changed. The equilibrium price *(rose/fell)* and the equilibrium quantity *(rose/fell)*.

6. If market conditions were represented by D_1 and S, the equilibrium price would be $ _____ per Greebe, and the equilibrium quantity would be _____ million Greebes.

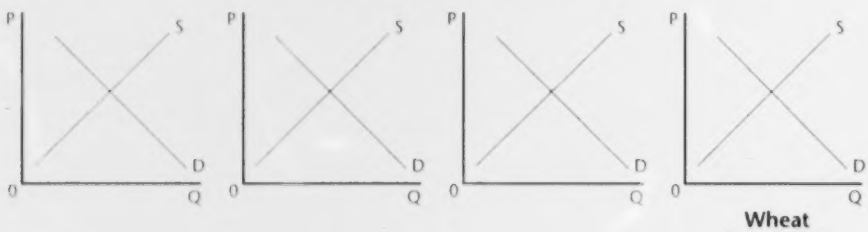
Part B.

The following questions refer to a group of related markets in the United States during a given long-run time period. Assume that the markets are perfectly competitive and that the supply-and-demand model is completely applicable. The diagrams show the supply and demand in each market before the assumed change occurs. Trace through the effects of the assumed change, other things constant. Work your way from left to right and ignore "feedback" effects. (Hint: Shift only one curve in each market.)

For each market below, draw whatever new supply and/or demand curves are needed, marking each new curve S_1 or D_1. Then circle the correct symbols under each diagram (↑ for increase, — for unchanged, ↓ for decrease). Remember, shift only one curve in each market.

1. Assume that a new fertilizer dramatically increases the number of potatoes that can be harvested with no additional labor or machinery. Also assume that this fertilizer does not affect wheat farming and that people are satisfied to eat either potatoes or bread made from wheat flour.

Effects of a New Fertilizer

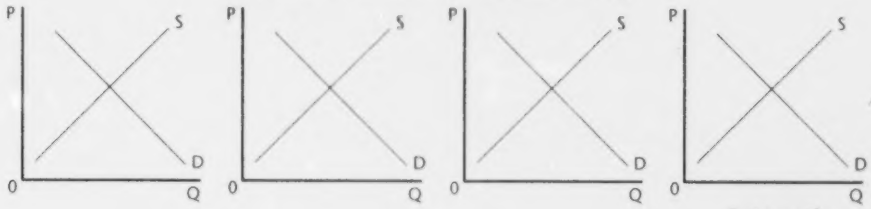


	Potatoes	Bread	Wheat	Wheat harvesting machinery
Demand:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Supply:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Equilibrium price:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Equilibrium quantity:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓

ACTIVITY 4 continued

2. Assume that a heavy frost destroys half the world's coffee crop and that people use more cream in coffee than they do in tea.

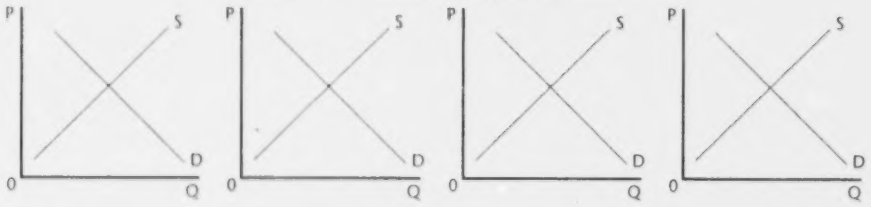
Effects of a Loss of Coffee Crop



	Coffee	Tea	Cream	Automatic coffee makers
Demand:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Supply:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Equilibrium price:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Equilibrium quantity:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓

3. Assume people's tastes change in favor of colored sports shirts, which are worn without neckties, and against white dress shirts, which are worn with neckties.

Effects of a Shift to Sports Shirts

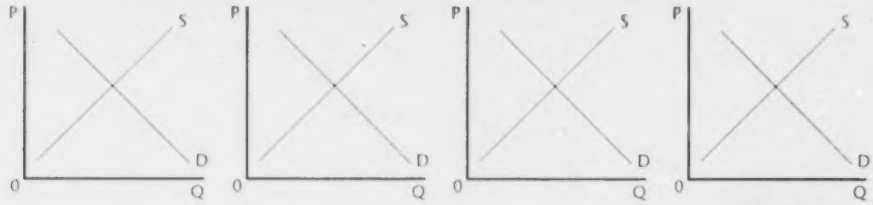


	Sports shirts	Dress shirts	Neckties	Tie clasps
Demand:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Supply:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Equilibrium price:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Equilibrium quantity:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓

ACTIVITY 4 continued

4. Assume people's tastes change and there is a decline in the demand for briefcases and luggage made out of leather. How would this affect the leather market and related markets? Underneath the two middle diagrams, write the names of the markets that relate leather to the shoelace packaging machinery. Draw the new curves and circle the appropriate symbols in all four markets.

Effects of Increased Demand for Leather Goods



	Leather	_____	_____	Shoelace packaging machinery
Demand:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Supply:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Equilibrium price:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓
Equilibrium quantity:	↑ — ↓	↑ — ↓	↑ — ↓	↑ — ↓

Sample Multiple-Choice Questions

Circle the letter of each correct answer.

1. To be considered scarce, an economic resource must be:
   I. Limited.
   II. Free.
   III. Desirable.

   a. I only
   b. I and II only
   c. II and III only
   d. I and III only
   e. I, II, and III

2. The value of the best alternative forgone when a decision is made defines:
   a. Economic good.
   b. Opportunity cost.
   c. Scarcity.
   d. Tradeoff.
   e. Comparative advantage.

3. An example of the opportunity cost of producing an additional unit of product A is:
   a. All of the human and capital resources used to produce product A.
   b. The retail price paid for product A.
   c. The wholesale price of product A.
   d. The amount of product B that cannot now be produced because of product A.
   e. The profit that could have been made from producing product A.

4. In which way does a straight-line production possibilities curve differ from a concave production possibilities curve?
   a. A straight-line production possibilities curve has a decreasing opportunity cost.
   b. A straight-line production possibilities curve has a constant opportunity cost.
   c. A straight-line production possibilities curve has an increasing opportunity cost.
   d. A straight-line production possibilities curve does not show opportunity cost.
   e. There is no difference between the two production possibilities curves.

5. The law of increasing opportunity cost is reflected in the shape of the:
   a. Production possibilities curve concave to the origin.
   b. Production possibilities curve convex to the origin.
   c. Horizontal production possibilities curve.
   d. Straight-line production possibilities curve.
   e. Upward-sloping production possibilities curve.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

The diagram below is used for questions 6-8. It shows the production possibilities boundary for the country with full employment of a given-size labor force.

6. If the country is currently producing at point *a*, it can produce more industrial goods by moving to point:

   a. *a* b. *b* c. *c* d. *d* e. *e*

7. Which of the following statements about the production possibilities curve is *true*?

   a. Point *d* is not attainable given the society's resources.

   b. Point *c* lies outside the production possibilities boundary because it represents a combination of resources not desired by the citizens of the country.

   c. Elimination of unemployment will move the production possibilities curve to the right, closer to point *c*.

   d. The relative positions of points *a* and *b* reflect production possibilities.

   e. Point *b* is not obtainable in a developed country.

8. How might point *c* be attained?

   a. If the country's resources were more fully employed.

   b. If the country's resources were shifted to encourage more efficient use of scarce resources.

   c. If improvements in technology occurred in either the industrial goods or the agricultural goods sector.

   d. If firms decreased their output of industrial goods.

   e. If the nation used more of its scarce resources to produce agricultural goods.

9. Which of the following would cause an outward or rightward shift in the production possibilities curve?

   a. An increase in unemployment.

   b. An increase in inflation.

   c. An increase in capital equipment.

   d. A decrease in natural resources.

   e. A decrease in the number of workers.

10. Which of the following is true when a demand schedule is drawn on a graph?

    I. Price is measured on the vertical axis.

    II. The demand curve has a negative slope.

    III. All other variables except price are held constant.

    a. I only

    b. II only

    c. III only

    d. I and II only

    e. I, II, and III

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

11. If there is an increase in demand, what will happen to the price and quantity of the good exchanged?

	Price	Quantity
a.	Increase	Decrease
b.	Increase	Increase
c.	Decrease	Increase
d.	Decrease	Decrease
e.	No change	Increase

12. What effect would a decrease in the price of silicon chips and a greater production of user-friendly software have on the price and quantity of computers?

	Price	Quantity
a.	Increase	Decrease
b.	Increase	Increase
c.	Decrease	Cannot be determined
d.	Cannot be determined	Increase
e.	Decrease	Decrease

13. An increase in the price of gasoline shifts the demand for tires in which direction?
    a. To the left, because gasoline and tires are substitutes.
    b. To the left, because gasoline and tires are normally used together.
    c. To the right, because gasoline and tires are substitutes.
    d. To the right, because gasoline and tires are normally used together.
    e. To the right, because an increase in the price of gasoline makes consumers poorer and thus not willing to pay as much for tires.

14. Four of the five events described below might reasonably be expected to shift the demand curve for beef to a new position. One would *not* shift that demand curve. What is the single exception?
    a. A fall in the price of beef.
    b. A change in people's tastes with respect to beef.
    c. An increase in the money incomes of beef consumers.
    d. A widespread advertising campaign undertaken by the producers of a product competitive with beef, such as pork.
    e. Expectations that beef prices will fall in the future.

15. This question is based on the following data:

Year	Quantity sold	Price
1994	30,000	$10
1995	50,000	$20

Which of the following statements is/are true?

I. Demand has increased.
II. Quantity demanded has increased.
III. Supply has increased.
IV. Quantity supplied has increased.
V. Supply has decreased.

    a. I only
    b. V only
    c. I and IV only
    d. I and V only
    e. I, II, and III only

Sample Short Essay Questions

1. True, false, or uncertain, and why? "The economic concept of scarcity is not relevant to the study of a modern economy such as that of the United States because the existence of unsold stocks of goods (books, cars, homes) is vivid evidence that we are surrounded by plenty, not scarcity."

2. A newspaper headline says, "The Coldest Winter in 20 Years Brings Record Prices for Heating Oil."
   a. Draw a diagram that illustrates this economic condition.
   b. Explain your diagram.

3. In a recent year, the price of wheat fell. Draw three diagrams showing this is consistent with the following:
   a. The quantity of wheat decreasing.
   b. The quantity of wheat increasing.
   c. The quantity of wheat staying the same.

   Briefly explain each of these diagrams.

4. True, false, or uncertain, and why? "If you won a million dollars in the lottery, you wouldn't have the economic problem of scarcity."

Sample Long Essay Questions

1. Every society has the fundamental problem of scarcity.
   a. What is scarcity?
   b. What three questions must every society answer because of scarcity?
   c. What are the three ways societies have dealt with the scarcity problem?
   d. Give one example of how each way is used in the United States.

2. Explain what would have to be true in each case for the production possibilities curves to be shaped as they are in A, B, and C.

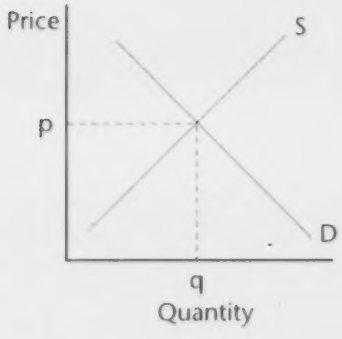
SAMPLE LONG ESSAY QUESTIONS continued

3. The market for many commodities is seasonal in nature. Their sales (equilibrium quantity) increase dramatically during certain times of the year. Christmas cards and fresh strawberries, at least in the North, are two examples. Christmas card sales increase during the last three months of the year, and the sales of fresh strawberries in the North increase during the summer months. But the (equilibrium) price movement of these two commodities is quite different during their peak sales season. Christmas cards increase in price when the equilibrium quantity increases, whereas strawberries decrease in price when the equilibrium quantity increases. Use the diagrams below to explain this seemingly paradoxical result.

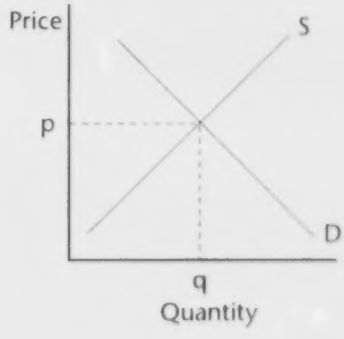
   a. Change the diagram for fresh strawberries in the North to show how there can be an increase in the equilibrium quantity and a decrease in the equilibrium price of strawberries in the summer, and briefly explain what has happened.

   b. Change the diagram for Christmas cards to show how there can be an increase in the equilibrium quantity and an increase in the equilibrium price of Christmas cards during the last three months of the year, and briefly explain what has happened.

Market for Fresh Strawberries in the North



Market for Christmas Cards



Question 3 adapted from Phillip Saunders, *Introduction to Macroeconomics: Student Workbook*, Fifteenth edition, Bloomington, IN, 1993. Copyright ©1993 Phillip Saunders. All rights reserved.

Macroeconomics

Unit 2
Measuring Economic Performance

Key Ideas

- Macroeconomics is the study of the economy as a whole; microeconomics is the study of individual parts of the economy such as businesses, households, and prices. Macroeconomics looks at the forest, microeconomics at the trees.
- A circular-flow diagram illustrates the major flows of goods and services, resources, and money in an economy. It shows how changes in those flows can alter the level of goods and services, employment, and income.
- Gross Domestic Product (GDP) is the market value of all final goods and services produced in a nation in one year; it is the most important measurement of production and output.
- GDP counts only final goods and services; it does not count intermediate goods and services.
- GDP also does not count secondhand goods; the buying and selling of stocks and bonds; and transfer payments such as social security benefits, unemployment compensation, and certain interest payments.
- GDP includes profits earned by foreign-owned businesses and income earned by foreigners in the United States, but it excludes profits earned by U.S.-owned companies overseas and income earned by U.S. citizens working abroad.
- GDP is most easily calculated in two ways: (1) add all the consumption, investment, and government expenditures plus net exports; and (2) add all the incomes received by owners of productive resources in the economy.
- Gross National Product (GNP) includes profits earned by U.S.-owned companies overseas and income earned by U.S. citizens working abroad, but it does not include profits earned by foreign-owned companies in the United States or income earned by foreigners working in this country.
- Other measures derived from national income accounting measures include Net National Product (NNP), National Income (NI), Personal Income (PI), and Disposable Personal Income (DPI).
- In 1991, the basic measurement of output and production in the United States was changed from GNP to GDP. Most other nations already used GDP, and this change reflected the increasing interdependence of the world's economies.
- Price indexes are used to measure price changes in the economy; they are used to compare the prices of a given "bundle" or "market basket" of goods and services in one year with the prices of the same "bundle" or "market basket" in another year.
- A price index has a base year, and the price level in that year is given an index number of 100; the price level in all other years is expressed as a percentage of the price level in the base year.
- Price index number = $\frac{\text{Current year prices}}{\text{Base year prices}} \times 100$
- The most frequently used price indexes are the GDP Price Deflator, the Consumer Price Index (CPI), and the Producer Price Index (PPI).
- Real GDP is adjusted for price changes; nominal GDP is not adjusted for price changes.
- Inflation is a general increase in the overall price level.
- Savers, lenders, and people on fixed incomes generally are hurt by unanticipated inflation; borrowers gain from unanticipated inflation.
- Unemployment occurs when people who are willing and able to work cannot find jobs at satisfactory wage rates.
- Unemployment is classified into four categories: frictional, cyclical, structural, and seasonal.
- The unemployment rate represents the percentage of the labor force that cannot find work on acceptable terms.
- Full employment is not defined to mean zero unemployment. Frictional and structural unemployment exist even with zero cyclical unemployment.
- A business cycle measures the ups and downs of economic activity over a period of years.
- The phases of the business cycle are expansion, peak, contraction, and trough.

ACTIVITY 5

Test of Macroeconomic Thinking

Circle T for *true* or F for *false* in the statements that follow.

T F 1. If the United States could maintain a high economic growth rate, we would eventually be able to satisfy everyone's wants for goods and services.

T F 2. If all the nations of the world disarmed, the international economy would collapse into a long depression and unemployment would increase.

T F 3. Money is an important economic resource.

T F 4. The higher the GDP, the better off all the people of the country are.

T F 5. Full employment means zero unemployment.

T F 6. The United States has had an inflation rate of at least three percent for each of the last 30 years.

T F 7. Inflation hurts almost everyone.

T F 8. Money consists mainly of currency and coins and is created by government printing presses and mints.

T F 9. The value of the dollar is determined by the fact that it is backed by gold.

T F 10. Most economists believe the only purpose of taxes is to provide money for government.

T F 11. The chief task of the Federal Reserve Board is to insure the deposits of bank customers.

T F 12. Tariffs are needed to protect our standard of living from competition from cheap foreign labor.

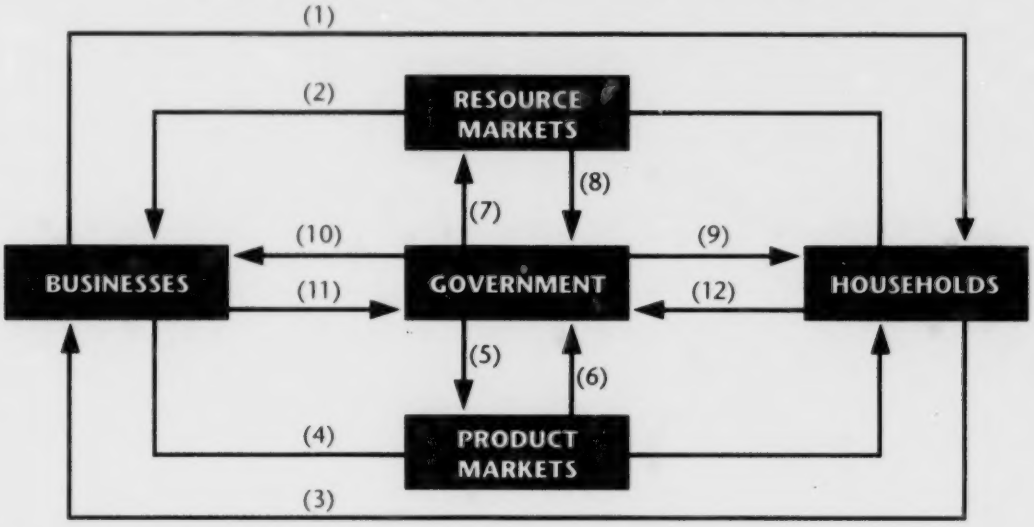
Activity developed by John Morton.

ACTIVITY 6

Understanding the Circular Flow of the Macroeconomy

The circular-flow diagram below includes business firms, households, and government (the public sector) as well as product and resource markets.

Circular Flow of Businesses, Households, and Government



Part A.
Supply a label or an explanation for each of the 12 flows in the model:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____

Adapted from William B. Walstad and Robert C. Bingham, *Study Guide to Accompany McConnell and Brue Economics*, 12th edition (New York: McGraw-Hill, 1993).

ACTIVITY 6 continued

Part B.
Use the number that labels each flow on the diagram, *Circular Flow of Businesses, Households and Government,* to complete questions 1 and 2. Cross out the incorrect words in question 3.

1. If government wanted to expand output and employment in the economy, it would increase expenditure flows _____ or _____, decrease net tax flows _____ or _____, or do both.

2. If government wanted to increase the production of public (social) goods and decrease the production of private goods in the economy, it would increase flows _____ and _____ or _____.

3. If government wanted to redistribute income from high-income to low-income households, it would *(increase/decrease)* the net taxes (taxes minus transfers) paid by high-income households and *(increase/decrease)* the net taxes paid by low-income households.

ACTIVITY 7
Numbers That Make News

You hear the phrases all the time: "The CPI is up," "the prime is down," "the GDP is flat." Though your first impulse may be to change the channel, such numbers are at least as relevant to most consumers' lives as the latest sports scores. Here's a quick guide to some of the most influential economic statistics and what they can mean to you.

Consumer price index (CPI). This is a measure of the average change in prices paid by urban consumers for a "market basket" of goods and services, including food, clothing, shelter, transportation, and prescription drugs. The items in the index are averaged and given weights that relate to their importance in overall spending. As with any weighted index, however, the overall CPI probably won't match your own budget. If you have hospital bills or college tuition to pay, your spending for those items will be far higher than what the CPI considers average for a household. For that reason, the CPI is often faulted as an unrealistic measure.

Realistic or not, it remains influential. The increase in the CPI is what most people think of as the "inflation rate." A 5 percent annual increase in the CPI, for example, is interpreted as an inflation rate of 5 percent. The inflation rate is used by manufacturers and retailers in predicting future price increases, by employers in calculating salaries and pensions, and by the government in determining cost-of-living increases for Social Security recipients.

Produce price index (PPI). While the CPI measures retail prices, the Producer Price Index measures changes in prices received by producers of commodities or finished goods before those products are sold to individuals or businesses. The PPI provides a clue to the future costs that consumers will pay. When producers receive higher prices from retailers for their products, it's likely that those increases will be passed on to consumers. There isn't always much you can do about it, but a major increase in the PPI may be a signal to stock up on nonperishables or to consider buying a new car this year instead of next.

Unemployment rate. In simplest terms, this is the number of unemployed people divided by the number in the total labor force. If there were 1000 unemployed in a labor force of 50,000, for example, the unemployment rate would be 2 percent (1000 divided by 50,000).

However, the unemployment rate is not a precise measure of the number of people who are out of work. The government counts people as being employed even if they worked only one hour in the surveyed week. And it doesn't include as members of the labor force so-called "discouraged workers"—people who might be able to work but who haven't actively looked for a job in the preceding four weeks. For those reasons, critics charge that the real unemployment rate in the U.S. is always several percentage points higher than the one that is announced every month. To consumers who haven't joined the unemployment statistics themselves, a low unemployment rate may be a signal that it's a good time to sell a home or start a business. A high unemployment rate may indicate that it's time to give serious consideration to one's own job security.

Gross domestic product (GDP). This is a measure of the total value of all finished goods and services produced within the United States. (A former measure, gross national product, included goods produced by U.S. individuals or businesses operating overseas; gross domestic product eliminates production abroad but includes production in the U.S. by foreign-owned companies. Honda and Toyota automobiles manufactured in the U.S., for example, are included in the gross domestic product.)

GDP is perhaps the most important barometer of national economic health. A rising GDP points to a strong and expanding economy, one in which consumers are likely to feel better about their job security or about making major purchases; a falling GDP is associated with higher unemployment and overall economic weakness.

Index of leading economic indicators. The economists' attempt to predict where the economy is headed, this index consists of 11 indicators, including initial claims for unemployment insurance, new orders placed to manufacturers, residential building permits, money supply, and the length of the average work week. The word "leading" refers not to popularity but to the fact that movements in these indicators tend to precede more noticeable changes in the economy. The index is considered a predictor of what will be happening in the economy six to nine months in the future and is worth a look before you make any major career or financial moves.

Prime rate. This is the interest rate banks charge their best commercial customers. The prime rate is significant to consumers because many types of loans have interest rates that are pegged to it. An adjustable-rate home-equity loan, for example, may have an interest rate expressed as "prime plus 2½" meaning the prime rate (7.25 percent in mid-June) plus 2.5 points, or 9.75 percent. If the prime rate goes up or down, loans pegged to the prime will follow in the same direction.

Existing-home sales. This statistic is gathered by the National Association of Realtors and reflects sales of single-family homes that were owned by someone other than their builders. Existing homes account for about 80 percent of all home sales.

Existing-home sales provide a quick check on how healthy the U.S. residential real-estate market is. If sales are high, then the market is considered healthy, with many people able to purchase their first homes or trade up to larger ones. That's good news for homeowners wishing to sell. Falling home sales may indicate a saturated or overpriced housing market, sometimes due to higher interest rates or to generally bleak economic conditions that make people wary of taking on a new mortgage. Falling sales can be bad news for home sellers, but good news for would-be buyers with both money and fortitude.

A strong dollar (or a weak one). When economic commentators refer to the U.S. dollar as being "strong" or "weak," they're talking about its value compared with other countries' currencies. When the dollar is strong, it is worth more yen, francs, lire, pounds, and so forth.

For American consumers, a strong dollar means that you may be able to buy imported goods for less money than would otherwise be the case. It also means that your money is worth more when you travel abroad—a dollar that's worth nine French francs (as was the case in the mid-1980s) goes a lot farther than one that's worth 5.5 francs (as was the case earlier [in 1994]).

A weak dollar isn't necessarily bad news. It means that the U.S. is a better deal for tourists from other countries; it also can be a boon for U.S. manufacturers because the exchange rate may make their goods cheaper for foreigners and therefore easier to sell overseas.

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ACTIVITY 7 continued

1. Which two indexes described in this reading are used to measure inflation?
   _____ _____

2. Which index provides advance warning of future consumer price increases?
   _____

3. True, false, or uncertain, and why? "Anyone not working is considered to be unemployed according to the government's unemployment statistics."

4. What does Gross Domestic Product measure?

5. You are told that the Index of Leading Economic Indicators has gone down for three straight months. What is the significance of this?

6. a. What is the prime rate?

   b. If you were considering buying a new home, would you want the prime rate to be higher or lower? _____
   Why?

7. You are planning a trip to Europe. Is a weak dollar good for you or bad for you? Explain.

ACTIVITY 8
Measuring Broad Economic Goals

Overview

The 1930s were marked by periods of chronically high unemployment in the United States. After World War II, Congress passed the Employment Act of 1946, which stated that it was the continuing policy and responsibility of the federal government to use all practical means to promote maximum employment, production, and purchasing power. The Employment Act of 1946 established three important goals for the economy:

1. **Full employment** (also called high employment) exists when most individuals who are willing to work at prevailing wages in the economy are employed. Even under conditions of full employment, there will be some temporary unemployment as workers change jobs and as new workers seek their first jobs. In addition, there will be some structural unemployment. Structural unemployment occurs when people do not have the skills for the jobs that are available.

2. **Price stability** exists when the average level of prices in the economy is neither increasing nor decreasing. The goal of price stability does not imply that prices of individual items should not change but only that the average level of prices should not. Therefore, a condition of price stability usually means that some prices are rising, others are stable, and still others are falling. A sustained rise in the average level of prices is called *inflation*; a sustained decline is called *deflation*.

3. **Economic growth** exists when the economy produces increasing amounts of goods and services over the long term. If the increase is greater than any increase in population, the amount of goods and services available per person will rise, and thus the nation's standard of living will improve.

Measuring the Achievement of Economic Goals

In order to determine how well we are achieving the three economic goals listed above, we must measure changes in employment, prices, and economic growth. In this section we look at how such measurements are commonly made.

Part A.
Measuring Employment

The national civilian unemployment rate and the national employment rate are the two most important means we use to measure how well we are achieving the goal of full employment. The unemployment rate is derived from a national survey of about 60,000 households conducted each month, which asks about the employment status of people aged 16 or older. The number of people at work or looking for work can be estimated very accurately from the survey data. Those people who are at work (the employed) plus those people who are looking for work (the unemployed) make up the labor force. (The labor force is much smaller than the total population, since many individuals are too young or too old to work, some people are unable to work, and some choose not to work.) The percentage of the total labor force that is out of work is computed by dividing the number of people looking for work (the unemployed) by the total labor force and multiplying the result by 100, as follows:

$$\text{Unemployment rate} = \frac{\text{Unemployed}}{\text{Labor force}} \times 100$$

The civilian employment rate is determined by taking the number of civilians 16 years of age and older—these data come from the monthly survey of 60,000 households—and dividing it by the number of persons 16 years of age and older in the noninstitutional population of the United States. (NOTE: The noninstitutional population includes all persons 16 years of age and older who are not inmates of penal or mental institutions, sanitariums, or homes for the aged, infirm, or needy, nor members of the armed forces stationed in the United States.)

$$\text{Employment rate} = \frac{\text{Employed persons, aged 16 and older}}{\text{Noninstitutional population, aged 16 and older}} \times 100$$

From *Master Curriculum Guide in Economics: Teaching Strategies for High School Economics Courses*. (New York: National Council on Economic Education, 1985), p.126.

ACTIVITY 8 continued

How well has the U.S. economy met the goal of full employment? Use the formulas just given to fill in the last three columns of the table, *Civilian Employment, 1950-1990.* (Answers for the year 1950 are supplied to guide you.)

Civilian Employment, 1950-1990

Year	Civilian non-institutional population, aged 16 and over	Civilian Labor Force (millions)			Unemployment rate	Employment rate
		Employed	Unemployed	Total		
1950	105	59	3	62	4.8%	56.2%
1960	117	66	4	_____	_____	_____
1970	137	79	4	_____	_____	_____
1980	168	99	8	_____	_____	_____
1990	188	117	7	_____	_____	_____

1. Both the unemployment rate and the employment rate were higher in 1990 than in 1950. Can you explain how such a result could occur?

2. Do the data on the national unemployment rate given in the table *Civilian Employment, 1950-1990* reflect the extent of unemployment among a particular group in our society, such as teenagers aged 16-19?

Part B.
Measuring Price Changes

Price indexes are used to measure price changes in the economy. By using a price index, one can "combine" the prices of a number of goods and/or services and express in one number the average change for all the prices. The Consumer Price Index, or CPI, is the measure of price change that is probably most familiar to most people. It measures changes in the prices of goods and services commonly bought by consumers. Items on which the average consumer spends a great deal of money—such as food—are given more weight (importance) in computing the index than items such as newspapers, magazines, and books, on which the average consumer spends comparatively less. The index itself is based on a market basket of approximately 400 goods and services. They are weighted according to how much the average consumer spent on these goods and services in a given—or "base"—year. Other price indexes used in the United States include (1) the Producer Price Index, which measures changes in the prices of consumer goods before they reach the retail level as well as the prices of supplies and equipment bought for use by businesses and (2) the GDP Price Deflator, which is the most inclusive index available since it takes into account all goods and services produced.

ACTIVITY 8 continued

To construct any price index, some previous period, most usually one year, is selected as the base period. The prices of any subsequent period are expressed as a percentage of the base period. For convenience the base period of any index and its components are practically always set at 100. For the Consumer Price Index, the formula used to measure price change from the base period is:

$$\text{Consumer Price Index} = \frac{\text{Weighted cost of base-period items in current period}}{\text{Weighted cost of base-period items in base period}} \times 100$$

We multiply by 100 to express the index in percentage form, which also makes the answer easily comparable to the figure of 100 set for the base period. To keep things simple, let's say an average consumer in our economy buys only three things, as described in the table *Prices of Three Goods Compared with Base Year*.

First compute the cost of buying all the items in the base year:

(30 x $5) = $150
+ (40 x $6) = $240
+ (60 x $1.50) = $90
Total = $480

To compute the Consumer Price Index for Year 1, find the cost of buying those same items in Year 1. Try this yourself. Your answer should be $530, i.e., the sum of (30 x $7) + (40 x $5) + (60 x $2). The Consumer Price Index for Year 1 is then equal to ($530/$480) x 100, which equals 110.4. This means that what we could have bought for $100 in the base year costs $110.40 in Year 1. If we subtract the base year index of 100.0 from 110.4 we get the percentage change in prices from the base year. In this example prices rose 10.4% from the base year to Year 1. Remember that the weights used for the Consumer Price Index are determined by what consumers bought in the base year; in the example given we used base-year quantities to figure the expenditures in Year 1 as well as in the base year. The rate of change in this index is determined by looking at the percent change from one year to the next. If, for example, the Consumer Price Index were 150 in one year and 165 the next, then the percent change for that year would have been a price rise of ten percent. This is computed by use of the following formula:

$$\text{Price change} = \frac{\text{Change in CPI}}{\text{Beginning CPI}} \times 100$$

$$= \frac{165 - 150}{150} \times 100 = 10\%$$

Prices of Three Goods Compared with Base Year

	Quantity bought in base year	Unit price in base year	Unit price in Year 1	Unit price in Year 2
Whole pizza pie	30	$5.00 _____	$7.00 _____	$9.00 _____
Prerecorded audiocassette	40	$6.00 _____	$5.00 _____	$4.00 _____
6-pack of soft drinks	60	$1.50 _____	$2.00 _____	$2.50 _____
Total		_____	_____	_____

ACTIVITY 8 continued

Now try the following problems, based on the table *Prices of Three Goods Compared with Base Year.*

1. What is the cost of buying the base-year items in Year 2? _____
2. What is the CPI for Year 2? _____
3. What was the percentage increase in prices from the base year to Year 2? _____
4. In December 1990, the CPI was at 130.7, and in December 1991, the CPI was at 136.2. What was the percentage change in prices for this 12-month period? _____

Part C.
Measuring Economic Growth

To measure economic growth, we measure increases in the quantity of goods and services produced in the economy from one period of time to another. The *Gross Domestic Product*, or *GDP*, is commonly used to measure economic growth. The GDP is the dollar value at market prices of all final goods and services produced in the economy during a stated period.

Final goods are goods intended for the final user. For example, gasoline is a final good but crude oil, from which gasoline and other products are derived, is not. Before using GDP to measure economic growth, we must first adjust GDP for any price changes that have occurred. Let's say GDP in Year 1 is $1,000 and in Year 2 it is $1,100. Does this mean the economy has grown 10% between Year 1 and Year 2? Not necessarily. If prices have risen, part of the increase in GDP in Year 2 will merely represent the increase in prices. We call GDP which has been adjusted for price changes *real GDP*; if it isn't adjusted for price changes, we call it *nominal GDP*. To compute real GDP in a given year, use the following formula:

$$\text{Real GDP in Year 1} = \text{Nominal GDP in Year 1} \times \frac{100}{\text{Price index in Year 1}}$$

To compute real economic growth in GDP from one year to another, subtract real GDP for Year 2 from real GDP in Year 1. Divide the answer (the change in real GDP from the previous year) by real GDP in Year 1. The result, multiplied by 100, is the percentage growth in real GDP from Year 1 to Year 2. (If real GDP declines from Year 1 to Year 2 the answer will be a negative percent.) Here's the formula:

$$\text{Economic growth rate} = \frac{\text{Real GDP in Year 2 minus real GDP in Year 1}}{\text{Real GDP in Year 1}} \times 100$$

For example, if real GDP in Year 1 = $1000 and in Year 2 = $1,028, then the economic growth rate from Year 1 to Year 2 equaled 2.8%: (1028 - 1000)/1000 = .028, which we multiply by 100 in order to express the result as a percentage.

In measuring real GDP and economic growth, it is usual to look at real GDP per capita. To do so, we divide the GDP of any period by a country's average population during the same period. This procedure enables us to determine how much of the economic growth of a country simply went to supply the increase in population and how much of the growth represented improvements in the standard of living of the entire population. In our example, let's say the population in Year 1 was 100 and in Year 2 it was 110. What was real GDP per capita in Years 1 and 2?

$$\text{Year 1 real GDP per capita} = \frac{\text{Year 1 real GDP}}{\text{Population in Year 1}} = \frac{1000}{100} = \$10$$

$$\text{Year 2 real GDP per capita} = \frac{1028}{110} = \$9.3$$

In this example, the average standard of living fell even though economic growth was positive. Developing countries with positive economic growth but with high rates of population growth often experience this condition.

ACTIVITY 8 continued

Now try these problems using the information in the table *Nominal and Real GDP*:

Nominal and Real GDP

	Nominal GDP	Price index	Population
Year 3	$5,000	125	11
Year 4	6,600	150	12

1. What is real GDP for Year 3? _____
2. What is real GDP for Year 4? _____
3. What is real GDP per capita for Year 3? _____
4. What is real GDP per capita for Year 4? _____
5. What is the rate of real economic growth between Years 3 and 4? _____
6. What is the rate of real economic growth per capita between Years 3 and 4? _____
   (*Hint:* Use per capita data in the economic growth rate formula.)

ACTIVITY 9
All About GDP

Part A. Is This Counted as Part of GDP?
Which of the following are *included* and which are *excluded* in calculating this year's GDP? Explain your decisions.

1. A monthly check received by an economics student who has been granted a government scholarship.

2. A farmer's purchase of a new tractor.

3. A plumber's purchase of a used truck.

4. The cashing of a U.S. government bond.

5. The services of a mechanic in fixing the radiator on his car.

6. A Social Security check paid by the government to a retired store clerk.

7. An increase in business inventories.

8. The government's purchase of a new submarine for the Navy.

9. A barber's income from cutting hair.

10. Income received from the sale of Nike stock.

Part A adapted from William B. Walstad, Michael W. Watts, Robert F. Smith, and Campbell R. McConnell, *Instructor's Manual to Accompany Economics*, 10th ed. (New York: McGraw-Hill Book Co., 1987), p. 33. Parts B and C developed by John Morton.

ACTIVITY 9 continued

Part B. GDP: Is It Counted and Where?
For each of the following items, write one of the following in the space provided:

C if the item is counted as *consumption*.
I if the item is counted as *investment*.
G if the item is counted as *government*.
N if the item is *not* counted in GDP.

_____ 1. You spend $7.00 to attend a movie.
_____ 2. A family pays a contractor $100,000 for a house he built for them this year.
_____ 3. A family pays $75,000 for a house built three years ago.
_____ 4. An accountant pays a tailor $175 to sew a suit for her.
_____ 5. The government increases its defense expenditures by $1,000,000,000.
_____ 6. The government makes a $90 Social Security payment to a retired person.
_____ 7. You buy General Motors stock for $1,000 in the stock market.
_____ 8. At the end of a year, a flour-milling firm finds that its inventories of grain and flour are $10,000 above the amounts of its inventories at the beginning of the year.
_____ 9. A homemaker works hard caring for her spouse and two children.
_____ 10. Ford Motor Company buys new auto-making robots.
_____ 11. You pay $300 a month to rent an apartment.
_____ 12. Apple Computer Company builds a new factory.
_____ 13. R.J. Reynolds Company buys control of Nabisco.
_____ 14. You buy a new Toyota that was made in Japan.
_____ 15. You pay tuition to attend college.

Part C. Why Are Things Counted or Not Counted in GDP?

1. We count only the final retail price of a new good or service in GDP. Why?

2. A purely financial transaction will not be counted in GDP. Why not?

3. When a homeowner does home improvement work, the value of the labor is not counted in GDP. Why not?

ACTIVITY 10
GDP and Its Cousins

Part A.
Use the following information on the national income accounts to answer the problems.

Main Points

- **Gross Domestic Product (GDP)** is the total market value of all final goods and services produced during a particular time period in the United States.

  GDP includes profits earned by foreign-owned businesses and income earned by foreigners in the United States, but it excludes profits earned by U.S.-owned companies overseas and by U.S. residents working abroad.

- **Gross National Product (GNP)** is the total market value of all final goods and services produced during a particular time period by U.S. residents.

  GNP includes profits earned by U.S.-owned companies overseas and income earned by U.S. residents working abroad, but it does not include income earned by foreign-owned companies in the United States or foreigners working in this country.

  GDP and GNP figures are now officially obtained by using the following calculations.

  Gross Domestic Product
  plus: receipts of factor income from the rest of the world
  minus: payments of factor income to the rest of the world
  Equals: Gross National Product.

  In this Activity, this is shortened to:

  Gross Domestic Product
  plus: net receipts of factor income from the rest of the world
  Equals: Gross National Product.

  and

  Gross National Product
  minus: net receipts of factor income from the rest of the world
  Equals: Gross Domestic Product.

- **Net National Product (NNP)** is the Gross National Product (GNP) minus the Consumption of Fixed Capital, or Depreciation (D). Thus NNP = GNP – D or GNP = NNP + D, and **Net Private Domestic Investment** is Gross Private Domestic Investment minus Depreciation.

- GDP and GNP do not include:
  a. purchases of intermediate goods.
  b. buying and selling second-hand goods (except for the commission, if any, earned).
  c. buying and selling stocks or bonds (except for the commission, if any, earned).
  d. money transfers (e.g., unemployment compensation, social security payments, and certain interest payments by the federal government and persons).

Adapted from Phillip Saunders, *Introduction to Macroeconomics: Student Workbook*, Fifteenth Edition, Bloomington, IN, 1993.
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ACTIVITY 10 continued

- If a firm buys intermediate goods (raw materials) and then, after processing, sells them as final goods, only the *value added* is counted in GDP and GNP.
- GDP can be measured in two ways:
  a. by the money spent to buy our output of goods and services, called the *Flow of Product*, or *Expenditures*, method. That is GDP = C + I + G + (X – M). "C" stands for consumer expenditures on goods and services. "I" stands for Gross Private Domestic Investment and includes all new construction of business structures and residences, purchases of new machinery, and *changes* in inventory. "G" stands for government purchases of goods and services (excluding transfer payments). "X" stands for Exports, and "M" stands for Imports.
  b. by the money earned in the process of producing final goods and services, called the *Earnings and Cost*, or *Incomes*, approach. That is, GDP = National Income (NI) + Indirect Business Taxes + Capital Consumption (Depreciation) – Net Receipts of Factor Income from the Rest of the World.

- **National Income (NI)** is an estimate of the factor cost of production, and it measures the flow of income accruing to the labor and property resources used in producing current output. It is equal to Compensation of Employees + Proprietors' Income (adjusted for Inventory Valuation and Capital Consumption) + Rental Income of Persons (adjusted for Capital Consumption) + Net Interest (which excludes some federal government and personal interest payments that are considered transfer payments) + Corporate Profits (adjusted for inventory valuation and capital consumption). Corporate Profits, in turn, consist of corporate income tax payments, dividends, and undistributed corporate profits. Another way to get National Income is to subtract Indirect Business Taxes (including some statistical adjustments) from NNP. NI = NNP – I.
- **Personal Income (PI)** differs from National Income for two main reasons: (1) some of the payments included in National Income do not reach people as Personal Income; and (2) income transfer people receive as payments are not payments for contributions to current production. Personal Income is National Income minus corporate income taxes, undistributed corporate profits, and Social Security taxes plus transfer payments and interest paid by persons.
- **Disposable Personal Income (DPI)** is the income that people have to spend or save after Personal Taxes are subtracted from Personal Income. Thus, Disposable Personal Income is Personal Income – Personal Income Taxes.
- **Personal Savings** is Disposable Personal Income – Personal Outlays.
- **Personal Outlays** are equal to Consumer Expenditures on goods and services + Interest Paid by Persons.

ACTIVITY 10 continued

Part B.
Compute the answers to the problems that follow.

1. You are given the following simplified and rounded data for a hypothetical economy.

	Billions of $
Personal Consumption Expenditures (C)	928
Gross Private Domestic Investment Expenditures for Structures, Equipment, and Inventory Change (I)	246
Government Purchases of Goods and Services (G)	288
Net Exports (Exports – Imports or X – M)	–3
Net Receipts of Factor Income from the Rest of the World	15
Consumption of Fixed Capital (depreciation)	140
Indirect Business Taxes (including statistical adjustments)	135

Compute the following:

a. Gross Domestic Product $_____ billion
b. Gross National Product $_____ billion
c. Net National Product $_____ billion
d. National Income $_____ billion

2. You are now given additional simplified and rounded data for this economy.

	Billions of $
Compensation of Employees (mostly wages and salaries, includes employer and employee Social Security taxes)	891
Proprietors' Income (adjusted)	115
Rental Income of Persons (adjusted)	16
Net Interest (does *not* include federal government interest payments, which are counted as transfer payments, or interest paid by persons)	72
Total Corporate Profits (before taxes) (adjusted)	105
Corporate Income Taxes	52
Dividends	30
Social Security Taxes	111
Government and Private Transfer Payments	168
Interest Paid by Persons	25
Personal Income Taxes	159

Compute the following:

a. National Income $_____ billion
b. Personal Income $_____ billion
c. Disposable Personal Income $_____ billion
d. Personal Savings $_____ billion

ACTIVITY 10 continued

Part C.
Answer the following questions. Use the Worksheet for Activity 10 on the following page.

1. Why can't one add up the value of sales for all producing units to arrive at national product? What must one add up instead?

2. Explain the relationships among GDP, GNP, NNP, NI, PI, and DPI. For what different purposes might one be interested in each of these different totals?

WORKSHEET FOR ACTIVITY 10

GDP, GNP, NNP, and National Income (NI) can be obtained in two ways:

Flow of Product, "Money Spent"		**Earnings and Cost, "Money Received"**		
Consumption Expenditures (C)	____	Compensation of Employees	____	
Gross Private Domestic Investment (I)	____	Proprietors' Income (Adjusted)	____	
Government Purchases of Goods & Services (G)	____	Rental Income of Persons (Adjusted)	____	
Net Exports (X–M)	____	Net Interest	____	
		Corporate Income Taxes	____	} Total Corporate Profits (Adj.)
Gross Domestic Product (GDP)	____	Dividends	____	
+ Net Receipts of Factor Income From the Rest of the World.	____	Undistributed Corporate Profits	____	
Gross National Product(GNP)	____	**National Income (NI)**	____	
– Capital Consumption	____	+ Indirect Business Taxes	____	
Net National Product (NNP)	____	**Net National Product (NNP)**	____	
– Indirect Business Taxes	____	+ Capital Consumption	____	
National Income (NI)	____	**Gross National Product (GNP)**	____	
		– Net Receipts of Factor Income From the Rest of the World.	____	
		Gross Domestic Product (GDP)	____	

Personal Income (PI) can also be obtained in two ways:

TEAR DOWN			**BUILD UP**	
National Income		____	PI = Compensation of Employees	____
– Corporate Income Taxes	____		Proprietors' Income (Adj.)	____
– Undistributed Corporate Profits	____		Rental Income of Persons (Adj.)	____
– Social Security Taxes	____	____	Net Interest	____
		____	Dividends	____
+ Government & Private Transfer Payments (_____) & Interest Paid by Persons (_____)		____	Government & Private Transfer Payments (_____) & Interest Paid by Persons (_____)	____
				____
Personal Income		____	– Social Security Taxes	____
			Personal Income	____

Once we have Personal Income, obtaining Disposable Personal Income (DPI) and Personal Savings (S_p) is easy:

	Personal Income		____
	– Personal Income Taxes		____
	Disposable Personal Income		____
Personal Outlays	– Consumption Expenditures	____	
	– Interest Paid by Persons	____	____
	Personal Savings (S_p)		____

ACTIVITY 11
Price Indexes

There is more than one method of constructing a price index. The easiest to understand is probably the weighted average method explained in this Activity. This method compares the total cost of a fixed market basket of goods in different years. The total cost of the market basket is weighted by multiplying the price of any item in the market basket by the number of units of this item that are included in the market basket. The cost of the basic market basket in the current year is then expressed as a percentage of the cost of the basic market basket in a given base year using this formula:

$$\text{Index Number} = \frac{\text{Current Year Cost}}{\text{Base Year Cost}} \times 100$$

(The multiplication by 100 converts the raw numbers to a percentage basis, so an index number can be defined as a percentage of the base year. The base year always has an index number of 100 since the current year cost and the base year cost of the market basket are the same in the base year.)

Using this information, let us now construct a price index. Fill in the blanks in the table *Constructing a Price Index*. (Does the market basket listed in this table closely parallel your own personal spending pattern?)

Constructing a Price Index

Basic Market Basket		Year 1 Price per Unit	Yr. 1 Cost of Market Basket	Year 2 Price per Unit	Yr. 2 Cost of Market Basket	Year 3 Price per Unit	Yr. 3 Cost of Market Basket
Item	No. of Units						
Bread	5 Loaves	$.50	$2.50	$1.00	$5.00	$1.00	$____
Cheese	2 Lbs.	1.50	3.00	2.00	____	2.50	5.00
Blue jeans	1 Pair	12.00	12.00	15.50	15.50	15.00	____
Gasoline	10 Gals.	1.25	12.50	.75	____	1.00	10.00
Textbook	1 Book	10.00	10.00	18.00	18.00	25.00	25.00
Total Expenditure			$40.00		$50.00		$____

1. We now have the information needed to construct a price index. The first step is to pick a base year and apply the formula. If Year 1 is selected as the base year, the index number for year one is ($40/$40 x 100 = 100). The index number for Year 2 is ($50/$40 x 100 = 125), and the index number for Year 3 is ($____/$40 x 100 = ____).

2. These index numbers indicate that there was a 25% increase in prices between Year 1 and Year 2.

   a. What is the percentage increase between Year 1 and Year 3? ____

   b. What is the percentage increase between Year 2 and Year 3? ____

Adapted from Phillip Saunders, *Introduction to Macroeconomics: Student Workbook*, Fifteenth edition, Bloomington, IN, 1993.
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ACTIVITY 11 continued

We need not have chosen Year 1 to be our base year. In order to determine if our choice of base year influenced the results we obtained, let's use Year 2 as our base year and recompute both the index numbers and the percentage changes between years.

Changing the Base Year of a Price Index

YEAR	Index Numbers (Year 2 = Base)	Percentage Change In Prices (Calculated by using changes in index numbers)
Year 1	\$40/\$50 x 100 = 80	Between Yr. 1 & Yr. 2 20/80 x 100 = 25%
Year 2	\$50/\$50 x 100 = 100	Between Yr. 2 & Yr. 3 ____/100 x 100 = _____%
Year 3	\$____/\$____ x 100 = ____	Between Yr. 1 & Yr. 3 40/80 x 100 = 50%

3. Do the index numbers change when the base year is changed from Year 1 to Year 2? _____

4. Does the percentage change in prices between years change when the base year is changed from Year 1 to Year 2? _____ Why or why not?

5. Would the price index numbers you have computed above change if a different set of expenditure patterns were selected for weighing? Why?

6. Under what conditions would each price index number computed above be a cost-of-living index? Under what conditions would it not be a cost-of-living index?

7. a. Would each price index number computed above be accurate if the quality of the goods in the basic market basket changed?

   b. How does one know if the quality of a product changes, for the better? For the worse?

ACTIVITY 12

Who Is Hurt and Who Is Helped by Inflation?

Describe groups that are hurt by inflation and groups that benefit from inflation. Circle:

H if the person or group is *hurt* by inflation.

G if the person or group *gains* from inflation.

U if it is *uncertain* if the person or group is affected by inflation or if the effects are unclear.

Then explain why you answered as you did.

1. Banks extend many fixed-rate loans.

   H G U Why?

2. A farmer buys machinery with a fixed-rate loan to be repaid over a ten-year period.

   H G U Why?

3. Your family buys a new home with an adjustable-rate mortgage.

   H G U Why?

4. Your savings from your summer job are in a savings account paying a fixed rate of interest.

   H G U Why?

5. A widow lives entirely on income from fixed-rate corporate bonds.

   H G U Why?

6. A retired couple lives entirely on income from a pension the woman receives from her former employer.

   H G U Why?

7. A retired man lives entirely on income from Social Security.

   H G U Why?

8. A retired bank official lives entirely on income from stock dividends.

   H G U Why?

Lesson developed by Betty Shackelford, Maconaquah High School, Bunker Hill, IN, and Kathleen Whitsett, Princeton High School, Cincinnati, OH.

ACTIVITY 12 continued

9. The federal government has a $5,000,000,000 debt.

   H G U Why?

10. A firm signs a contract to provide maintenance services at a fixed rate for the next five years.

    H G U Why?

11. A state government receives revenue mainly from a progressive income tax.

    H G U Why?

12. A local government receives revenue mainly from fixed-rate license fees charged to businesses.

    H G U Why?

13. Your friend rents an apartment with a three-year lease.

    H G U Why?

14. A bank has loaned millions of dollars for home mortgages at a fixed rate of interest.

    H G U Why?

15. Parents are putting savings for their child's college education in a bank savings account.

    H G U Why?

16. What conclusions can you draw about who is helped and who is hurt by inflation?

17. If you were certain that the inflation rate would be ten percent a year for the next ten years, how might your behavior change?

ACTIVITY 13

Types of Unemployment

There are four types of unemployment.

- *Frictional unemployment* includes people who are temporarily between jobs. They may have quit one job to find another, or they could be trying to find the best opportunity after graduating from high school or college.
- *Cyclical unemployment* rises in a recession. For example, it may be caused by too little spending in the economy. People are not buying many goods and services, so workers are laid off.
- *Structural unemployment* involves mismatches between job seekers and job openings. Unemployed people who lack skills or have a poor education are structurally unemployed.
- *Seasonal unemployment* affects workers who have worked during the past year but are unemployed during other parts of the year due to changes in the weather.

For each of the following situations, put the appropriate letter before the example.

F if it is an example of *frictional unemployment*.

C if it is an example of *cyclical unemployment*.

St if it is an example of *structural unemployment*.

S if it is an example of *seasonal unemployment*.

_____ 1. A Wisconsin construction worker cannot find work in the winter.

_____ 2. A steelworker is laid off because of a long recession.

_____ 3. A computer programmer quits her job in Chicago to look for a new job in San Diego.

_____ 4. A store clerk loses her job because sales are slow during a business slump.

_____ 5. A high school dropout applies for several jobs but is told each time that he is not qualified.

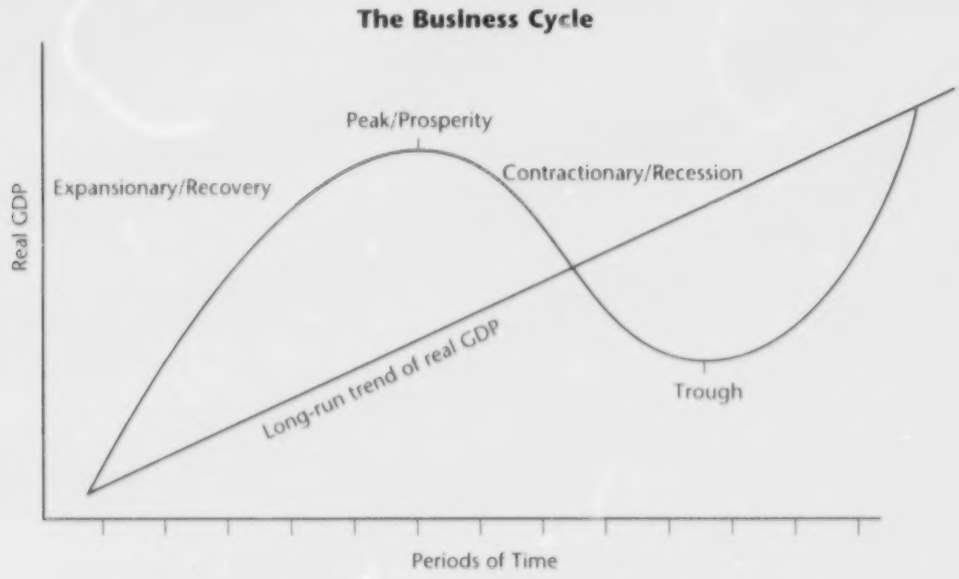
_____ 6. An unemployed college senior is looking for her first job.

_____ 7. An unemployed auto worker has been replaced by a robot.

_____ 8. A person rejects a job offer because the wage is too low.

Exercise developed by John Morton.

ACTIVITY 14
The Business Cycle



The curved line on the graph *The Business Cycle* shows a sample business cycle for an economy. The straight line represents the long-run trend of real GDP. The business cycle can conveniently be divided into four phases:

1. **Expansionary or recovery phase.** Real output in the economy is increasing and the unemployment rate is declining. As the economic expansion continues, inflation may continue to accelerate.

2. **Peak or prosperity phase.** Real output in the economy is at a high level, unemployment is relatively low, and inflation may be high.

3. **Contractionary or recession phase.** Real output in the economy is decreasing and the unemployment rate is rising. As the contraction continues, inflationary pressures subside. If the recession continues long enough, prices may actually start to fall, a situation known as *deflation*.

4. **Trough.** The lowest point of real GDP reached during a business cycle is known as the trough. If the trough is particularly deep, it may be called a depression. A *depression* is an economic situation where the level of output falls to especially low levels and unemployment climbs to very high levels relative to the historical average. There is no precise decline in output at which a serious recession becomes a depression. However, most business cycles do not end in a depression. The most recent depression experienced in the United States was during the 1930s.

Exercise developed by David Nelson, Western Washington University, Bellingham, WA.

ACTIVITY 14 continued

1. The table *The U.S. Economy, from 1970* contains information for the U.S. economy from 1970 through 1991. For each year, first identify whether the economy was in an expansionary (*E*) or a contractionary (*C*) phase. Then, go back and pick out the years that correspond to a business-cycle peak and mark them with a (*P*) and the years that correspond to a trough and mark them with a (*T*).

The U.S. Economy, from 1970

Year	*Real GDP in 1987 dollars (billions)*	*% change from previous year*	*Civilian unemployment rate*	*Inflation rate CPI Dec. to Dec.*	*Phase of the business cycle*
1970	2,873.9	0.0	4.9	5.6	____
1971	2,955.9	2.9	5.9	3.3	____
1972	3,107.1	5.1	5.6	3.4	____
1973	3,268.6	5.2	4.9	8.7	____
1974	3,248.1	-0.6	5.6	12.3	____
1975	3,221.7	-0.8	8.5	6.9	____
1976	3,380.8	4.9	7.7	4.9	____
1977	3,533.3	4.5	7.1	6.7	____
1978	3,703.5	4.8	6.1	9.0	____
1979	3,796.8	2.5	5.8	13.3	____
1980	3,776.3	-0.5	7.1	12.5	____
1981	3,843.1	1.8	7.6	8.9	____
1982	3,760.3	-2.2	9.7	3.8	____
1983	3,906.6	3.9	9.6	3.8	____
1984	4,148.5	6.2	7.5	3.9	____
1985	4,279.8	3.2	7.2	3.8	____
1986	4,404.5	2.9	7.0	1.1	____
1987	4,539.9	3.1	6.2	4.4	____
1988	4,718.6	3.9	5.5	4.4	____
1989	4,838.0	2.5	5.3	4.6	____
1990	4,877.5	0.8	5.5	6.1	____
1991	4,821.0	-1.2	6.7	3.1	____
1992			7.4		____
1993					____
1994					____
1995					____
1996					____
1997					____
1998					____
1999					____

SOURCE: *1993 Economic Report of the President*, U.S. Government Printing Office, Washington, DC.

ACTIVITY 14 continued

2. How many business cycles did the U.S. economy have between 1970 and 1991?
   _____

3. In how many years was output expanding? _____

4. In how many years was output contracting? _____

5. What economic expansionary period looks best to you? Why?

6. What economic contraction/recession looks worst to you? Why?

7. During years in which real GDP fell, what happened to the unemployment rate compared with the previous year? Why?

8. Look at the unemployment rate in years corresponding to a business-cycle peak. Why do you think there was still some unemployment in those years?

9. Based on the years 1970-1991, how does the rate of inflation correspond with the business cycle?

ACTIVITY 15
Problems on Macroeconomic Indicators

Answer the questions and briefly explain your answers on a separate sheet of paper.

1. The unemployment rate and employment both go up. Ellen says that it is not possible for both of these rates to rise at the same time. Is Ellen correct or incorrect? Why?

2. True, false, or uncertain, and why? "Gross Domestic Product measures the amount of wealth in the economy."

3. True, false, or uncertain, and why? "A decrease in Gross Domestic Product must reduce a person's standard of living."

4. True, false, or uncertain, and why? "If nominal GDP increases by five percent and the price level increases by seven percent, real GDP has decreased."

5. True, false, or uncertain, and why? "In preparing an index of prices, it is important that all commodities entering the index be given equal weight."

6. True, false, or uncertain, and why? "*Frictional* and *structural* unemployment are two words for the same thing."

7. Why does unanticipated inflation help borrowers and hurt lenders?

8. True, false, or uncertain, and why? "Inflation always increases when unemployment decreases."

9. True, false, or uncertain, and why? "If the economy is at full employment, the unemployment rate is zero."

10. True, false, or uncertain, and why? "Seasonal unemployment is a continual worry because some people are out of work on a regular basis."

Several questions from Phillip Saunders, *Introduction to Macroeconomics: Student Workbook*, Fifteenth edition, Bloomington, IN, 1993. Copyright ©1993 Phillip Saunders. All rights reserved.
Betty Shackelford, Maconaquah High School, Bunker Hill, IN, and Kathleen Whitsett, Princeton High School, Cincinnati, OH, contributed to this activity.

Sample Multiple-Choice Questions

Circle the letter of each correct answer.

1. In product markets:
   a. Households sell products to business firms.
   b. Households sell resources to business firms.
   c. Business firms sell resources to households.
   d. Business firms sell goods and services to households.
   e. Households buy resources from business firms.

2. In resource or factor markets:
   a. Households sell products to business firms.
   b. Households sell resources to business firms.
   c. Business firms sell resources to households.
   d. Business firms sell goods and services to households.
   e. Households buy resources from business firms.

3. Which of the following economic indicators is the best measure of production or output of an economy?
   a. Consumer Price Index.
   b. Unemployment rate.
   c. Gross Domestic Product.
   d. Prime rate.
   e. Index of Leading Indicators.

4. The market value of all final goods and services produced in the economy in a given year is the:
   a. Net National Product.
   b. National Income.
   c. Personal Income.
   d. Gross Domestic Product.
   e. Producer Price Index.

5. Which of the following would cause the unemployment rate to increase?
   I. A man who quits his job to spend more time with his children.
   II. A woman who has not looked for a job in two years and begins looking again.
   III. A woman who quits her job and begins looking for a new job in another city.

   a. I only
   b. II only
   c. III only
   d. I and II only
   e. II and III only

6. The largest item in the expenditure or flow of product approach to GDP is:
   a. consumer spending.
   b. Gross Domestic Investment.
   c. Net exports of goods and services.
   d. Government purchases of goods and services.
   e. Rental payments.

7. The largest item in the income or earnings and costs approach to GDP is:
   a. Rental payments.
   b. Government expenditures on goods and services.
   c. Consumer spending.
   d. Wages or compensation of employees.
   e. Net interest.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

8. Which of the following is included in the calculation of GDP?
   I. The cost of cleaning up air and water pollution.
   II. The cost of investing in a share of McDonald's stock.
   III. The cost of catfish sold to a supermarket.

   a. I only
   b. II only
   c. III only
   d. I and II only
   e. I, II, and III

9. Which of the following would be included in the calculation of GDP?
   I. The sale of a used car.
   II. Social Security payments to a retired steelworker.
   III. The purchase of a new home from a builder.

   a. I only
   b. II only
   c. III only
   d. I and II only
   e. II and III only

10. Which of the following would be counted as Investment when calculating GDP?
   I. The purchase of a computer by an auto manufacturer.
   II. The purchase of a share of IBM stock by a secretary.
   III. The construction of a new house.

   a. I only
   b. II only
   c. I and II only
   d. I and III only
   e. II and III only

Questions 11-15 are based on the following National Income data. All numbers are in billions of dollars.

Net private domestic investment	$275
Government purchases	$315
U.S. imports	$260
Personal taxes	$45
Transfer payments	$247
U.S. exports	$249
Personal consumption expenditures	$475
Net receipts from factor income from the rest of the world	$10
Gross private domestic investment	$300
Indirect business taxes	$245
Undistributed corporate profits	$60
Social Security taxes	$240
Corporate income taxes	$65

11. Gross Domestic Product is:
   a. $1,059.
   b. $1,069.
   c. $1,079.
   d. $1,101.
   e. $1,190.

12. Net National Product is:
   a. $1,049.
   b. $1,059.
   c. $1,064.
   d. $1,086.
   e. $1,120.

13. National Income is:
   a. $819.
   b. $841.
   c. $925.
   d. $960.
   e. $1,060.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

14. Personal Income is:
    a. $701.
    b. $723.
    c. $766.
    d. $826.
    e. $856.

15. Disposable Income is:
    a. $149.
    b. $656.
    c. $678.
    d. $781.
    e. $811.

16. Which of the following would be an example of an intermediate good or service?
    a. A calculator purchased by a college student for taking exams.
    b. Gasoline purchased by an insurance agent in order to visit clients at their homes.
    c. A house purchased by a family with four children.
    d. A car purchased by a student's parents and given to the student.
    e. Tuition paid by a student at a state university.

17. Which of the following is an example of structural unemployment?
    a. A computer programmer who quits her job to move to a warmer climate.
    b. A construction worker who loses his job in the winter.
    c. An autoworker who loses her job during a recession.
    d. A steelworker who is replaced by a robot.
    e. A toymaker who worked for a company that closed because consumers did not buy its toys.

18. If the price index in a country is 100 for 1990 and 120 for 1999 and nominal GDP in 1999 is $480 billion, real GDP in 1999 in 1990 dollars is about:
    a. $384 billion.
    b. $400 billion.
    c. $424 billion.
    d. $460 billion.
    e. $480 billion.

Use the following information for a hypothetical economy to answer questions 19 and 20.

Year	Current or "Money" GDP	GDP Price Index (1970 = 100)	GDP Price Index (1980 = 100)
1970	$500	100	____
1980	$1,200	200	100

19. The value of the 1980 GDP in terms of 1970 prices is:
    a. $600.
    b. $700.
    c. $1,000.
    d. $1,200.
    e. $1,300.

20. If 1980 is made the base year for the GDP price index, the value of the index number for 1970 (rounded to the nearest whole number) would be:
    a. zero.
    b. 42.
    c. 142.
    d. 212.
    e. 256.

Sample Short Essay Questions

1. True, false, or uncertain, and why? "To ignore the production of intermediate goods when measuring the total product of a country means ignoring the work, the efforts, and the incomes of millions of citizens. This is a mistake and can be rectified only by including intermediate goods production in GDP figures."

2. True, false, or uncertain, and why? "A man diminishes GDP by marrying his cook."

3. You read the headline: "Real GDP Drops 3% This Year; Further Drops Likely Next Year, Say Economists."

   a. What does this headline mean? Be specific.

   b. Why do people care about the problem?

   c. What is the difference between real GDP and nominal GDP?

4. In 1994, the annual unemployment rate was 6.1 percent. Define the unemployment rate and explain its meaning. What other information do you want to know before recommending a policy to reduce unemployment?

5. The following headline appeared in 1986: "Inflation Rate at 1.1%—Lowest Rate in 2 Decades."

   a. What is meant by "inflation"?

   b. How did the statisticians arrive at 1.1 percent? What measure did they probably use?

   c. What does this headline imply about inflation during the 20 years before 1986?

6. The following table shows the price of a specific stereo receiver for a five-year period. Using 1992 as the base year, calculate the price index for each year.

Year	Price	Price index (1992 = 100)
1990	$ 88	____
1991	$100	____
1992	$120	____
1993	$132	____
1994	$140	____

Sample Long Essay Questions

1. Define "unanticipated inflation." How does unanticipated inflation affect lenders, borrowers, homeowners, and the federal government?

2. You read the following information about the economy:

   Real GDP up three percent from a year ago.
   Unemployment rate of 6.1 percent.
   Consumer Price Index up six percent from a year ago.
   Index of Leading Indicators up for the last six months.
   Prime interest rate of ten percent, up from seven percent a year ago.

   a. Explain what each of these economic indicators measures and what the significance of the current data is for the economy.

   b. These indicators should paint a picture of the entire economy. Describe that picture.

Macroeconomics

Unit 3

Aggregate Demand and Aggregate Supply: Fluctuations in Outputs and Prices

Key Ideas

- Aggregate demand (AD) and aggregate supply (AS) curves look and operate much like the supply and demand curves used in microeconomics. However, these macroeconomic AD and AS curves depict different things, and they change for different reasons than microeconomic demand and supply curves. AD and AS curves can be used to illustrate changes in real output and the price level of an economy.
- The downward sloping aggregate demand curve is explained by the wealth effect, the income effect, and the foreign purchases effect.
- The aggregate supply curve is divided into three ranges: the horizontal or Keynesian range, the upward sloping or intermediate range, and the vertical or classical range.
- Changes in the price level and output are illustrated by shifts and movements along the aggregate demand and supply curves.
- Shifts in aggregate demand can change the level of output and the price level or both. The determinants of AD include changes in consumer spending, investment spending, government spending, and net export spending.
- Shifts in aggregate supply can also change the level of output and the price level. Determinants of AS include changes in input prices, productivity, the legal institutional environment, and the quantity of available resources.
- Changes in outputs can also be illustrated by the Keynesian expenditure-output model. This model differs from the AD/AS model because in the Keynesian model the price level is assumed to be constant. The Keynesian model has fixed prices.
- The AD/AS model can be reconciled with the Keynesian expenditure-output model. In the Keynesian (horizontal) range of the AS curve, both models are identical. The models differ in the intermediate and vertical ranges of the AS curve.
- Autonomous spending is that part of AD that is independent of the current rate of economic activity.
- Induced spending is that part of AD that depends upon the current rate of economic activity.
- The multiplier is a number that influences the relationship of changes in autonomous spending to changes in real GDP.
- The formula for calculating the multiplier is:

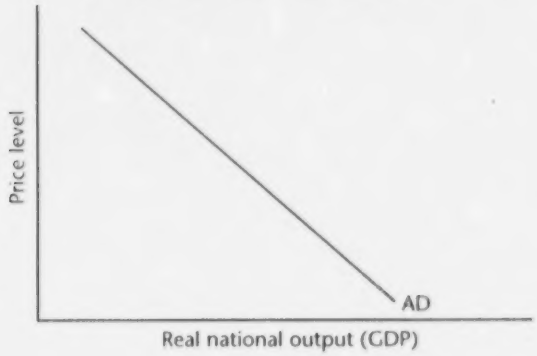
$$M = \frac{1}{1 - MPC}$$

- The multiplier results from subsequent rounds of induced spending that occur when autonomous spending changes.
- Keynesian economists believe that equilibrium levels of GDP can occur at less than or more than the full-employment level of GDP. Classical economists believe that long-run equilibrium can occur only at full employment.
- Fiscal policy consists of government actions that may increase or decrease aggregate demand. These actions involve changes in government spending and taxing.
- The government uses an expansionary fiscal policy to try to increase aggregate demand during a recession. The government may decrease taxes, increase spending, or do a combination of the two.
- The government uses a contractionary fiscal policy to try to decrease aggregate demand during a period of inflation. The government may increase taxes, decrease spending, or do a combination of the two.
- Discretionary fiscal policy means the federal government must take deliberate action or pass a new law changing taxes or spending. The automatic or built-in stabilizers change government spending or taxes without new laws being passed or deliberate action being taken.
- The balanced budget multiplier indicates that equal increases or decreases in taxes and government spending increase or decrease equilibrium GDP by an amount equal to that increase or decrease.
- Stagflation can be explained by a decrease in aggregate supply.

ACTIVITY 16
An Introduction to Aggregate Demand

Part A. Why Is the Aggregate Demand Curve Downsloping?

Aggregate Demand Curve



1. According to the AD curve, what is the relationship between the price level and real national output?

2. In what ways do the reasons that explain the downward slope of the AD curve differ from the reasons that explain the downward slope of the demand curve for a single product?

3. Explain how each of the following effects helps explain why the AD curve is downward sloping.

   a. Interest rate effect

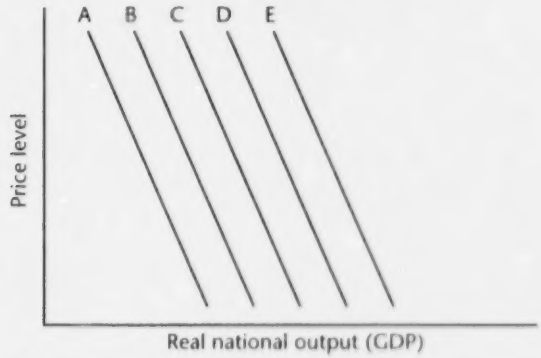
   b. Real balances effect

   c. Foreign purchases effect

ACTIVITY 16 continued

Part B. Shifts in Aggregate Demand

Shifts in Aggregate Demand



For each situation described below, determine if the event will increase or decrease AD. Start with AD curve *C*. If you think the first situation would increase AD, write "increase" and move to curve *D*. If you think the first situation would decrease AD, write "decrease" and move to curve *B*. Move only one curve at a time. Do not skip a curve even if you think the situation would cause a huge increase or decrease in AD. If you think an event would not cause AD to shift, write "no change." Do not go beyond the five curves. If you need to go beyond the five curves, you need to rethink your answers!

1. Congress cuts taxes.

   AD _____ Curve _____

2. Survey shows business investment spending decreased last month.

   AD _____ Curve _____

3. Government spending to increase next fiscal year; President promises no increase in taxes.

   AD _____ Curve _____

4. Survey shows consumers are confident about future economy.

   AD _____ Curve _____

5. Business leaders feel economy is headed for recession.

   AD _____ Curve _____

6. Stock market collapses—investors lose billions.

   AD _____ Curve _____

7. Productivity rises for fourth straight year.

   AD _____ Curve _____

8. President cuts defense spending by 20 percent; no increase in domestic spending.

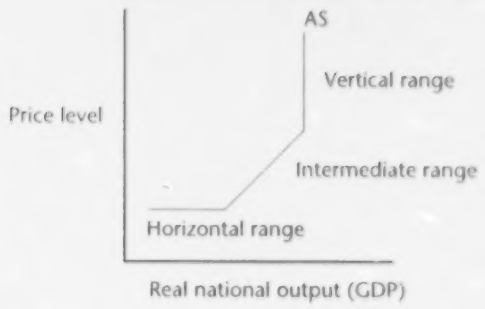
   AD _____ Curve _____

ACTIVITY 17

An Introduction to Short-Run Aggregate Supply

Part A. Why Does the Aggregate Supply Curve Look So Funny?

Aggregate Supply Curve



1. Under what conditions would AS be in the horizontal range?

2. Under what conditions would AS be in the vertical range?

3. Under what conditions would AS be in the intermediate range?

4. What difference does it make if AS is in the horizontal, intermediate, or vertical range?

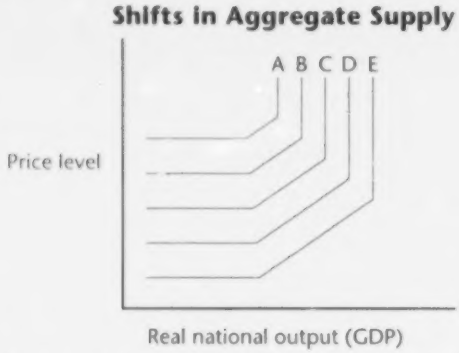
5. Economists believe that AS in the vertical range represents potential GDP at full employment. Why?

6. a. What range do you think AS is in today?

   b. Why?

ACTIVITY 17 continued

Part B. Shifts in Aggregate Supply



This Activity is similar to Part B of Activity 16, but it shows shifts in aggregate supply. For each situation described, determine if the event will increase or decrease AS. Start with AS curve *C*. If you think the first situation would increase AS, write "increase" and move to curve *D*. If you think the first situation would decrease AS, write "decrease" and move to curve *B*. Move only one curve at a time. Do not skip a curve even if you think a situation will cause a huge increase or decrease in AS. If you think a situation will not cause AS to shift, write "no change." Do not go beyond the five curves. If you go beyond the five curves, you should rethink your answer!

1. Unions grow more aggressive; wage rates increase.

   AS _____ Curve _____

2. OPEC successfully increases oil prices.

   AS _____ Curve _____

3. Labor productivity increases dramatically.

   AS _____ Curve _____

4. Giant natural gas discovery decreases energy prices.

   AS _____ Curve _____

5. Computer technology brings new efficiency to industry.

   AS _____ Curve _____

6. Government spending increases.

   AS _____ Curve _____

7. Cuts in tax rates increase incentives to save.

   AS _____ Curve _____

8. Low birth rate to decrease labor force in future.

   AS _____ Curve _____

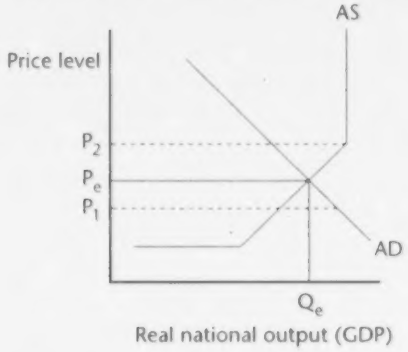
9. Research shows that improved schools have increased the skills of American workers and managers.

   AS _____ Curve _____

ACTIVITY 18
The Equilibrium Price Level and Equilibrium Output

Part A. Equilibrium

Equilibrium Price Levels and Output



1. What are the equilibrium price level and output? _____

2. a. What would eventually happen to the price level and output if the initial price level were P_2 rather than P_e?

   b. Why would this happen?

3. a. What would eventually happen to the price level and output if the initial price level were P_1 rather than P_e?

   b. Why would this happen?

John Morton and James Stanley, Kingswood-Oxford School, West Hartford, CT, contributed to this activity.

ACTIVITY 18 continued

Part B. Changes in the Equilibrium Price Level and Output

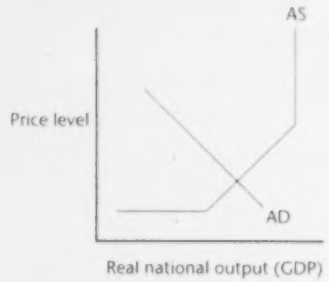
For each situation described, illustrate the change on the AD/AS graph and describe the effect on the equilibrium price level and real national output by circling the correct arrow (↑ for increase, ↓ for decrease, — for unchanged).

1. Congress passes a tax cut for the middle class, and the President signs it.

   Price level ↑ ↓ —

   Real national output (GDP) ↑ ↓ —

Change A—Middle Class Tax Cut

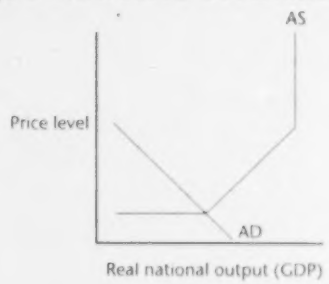


2. During a recession, the government increases spending on schools, highways, and other public works.

   Price level ↑ ↓ —

   Real national output (GDP) ↑ ↓ —

Change B—Increased Government Spending

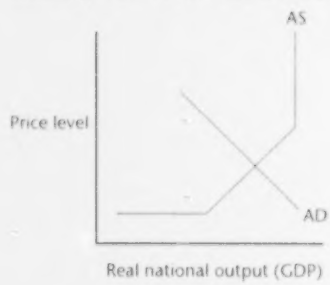


3. New oil discoveries cause large decreases in energy prices.

   Price level ↑ ↓ —

   Real national output (GDP) ↑ ↓ —

Change C—New Oil Discoveries

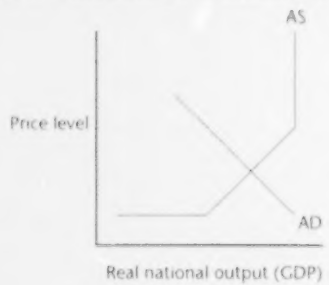


4. Illustrate the effects of demand-pull inflation.

   Price level ↑ ↓ —

   Real national output (GDP) ↑ ↓ —

Change D—Effects of Demand-Pull Inflation



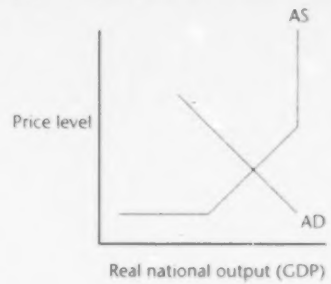
ACTIVITY 18 continued

5. Illustrate the effects of cost-push inflation.

   Price level ↑ ↓ —

   Real national output (GDP) ↑ ↓ —

Change E—Effects of Cost–Push Inflation

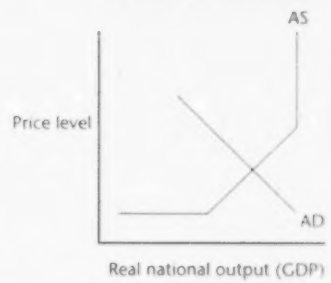


6. New technology and better education increase productivity.

   Price level ↑ ↓ —

   Real national output (GDP) ↑ ↓ —

Change F—Effects of New Technology and Better Education

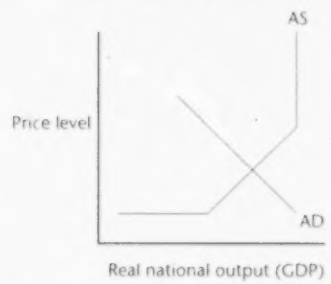


7. A new President makes consumers and businesses more confident about the future economy. *Note: Show the change in AD only.*

   Price level ↑ ↓ —

   Real national output (GDP) ↑ ↓ —

Change G—Increased Confidence for Future Economy

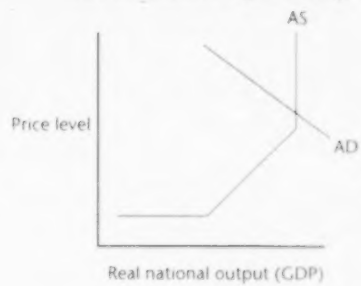


8. With the unemployment rate at five percent, the federal government reduces personal taxes and increases government spending. *Note: Show the change in AD only.*

   Price level ↑ ↓ —

   Real national output (GDP) ↑ ↓ —

Change H—Reduced Taxes and Increased Government Spending

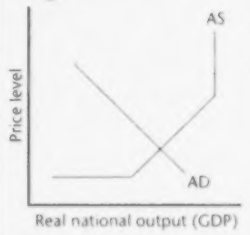
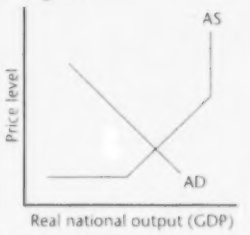
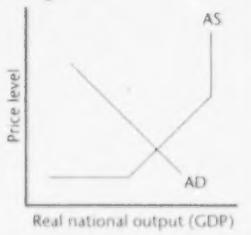
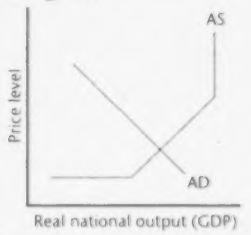


ACTIVITY 18 continued

Part C. Summarizing Aggregate Demand and Aggregate Supply Shifts

For each of the events, make additions to the diagram that illustrate the change. Then indicate the response in terms of shifts in or movements along the aggregate demand or aggregate supply curve and the effect on real national output and the price level in the short run. Indicate *shifts* in the curve by **S** and movements *along* the curve by **A**. Indicate the changes in price level, unemployment, and real national output with + for an increase and – for a decrease.

Events:

1. Increase in labor productivity due to technological change	2. Increase in the price of inputs used by many firms	3. Boom in investment assuming some unemployed resources are available	4. A major reduction in investment spending
Diagram 	Diagram 	Diagram 	Diagram 
AD Curve			
AS Curve			
Real National Output			
Price Level			
Unemployment			

ACTIVITY 19

Long-Run Aggregate Supply (LRAS) and the Production Possibilities Curve (PPC)

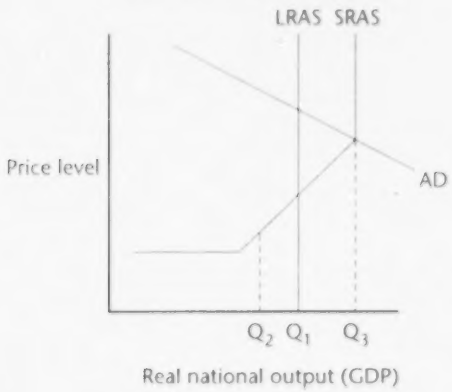
The long-run aggregate supply (LRAS) curve differs from the short-run aggregate supply (SRAS) curve. The LRAS curve is a vertical line. The level of output of this line indicates the quantity of goods and services a nation can produce if it uses all of its productive resources as efficiently as possible with all of the current technology available to it. Long-run aggregate supply is at full employment. Developing more and better resources or improving technology will shift the LRAS curve outward, but it will still be vertical. The LRAS curve is similar to the production possibilities curve that you studied earlier. Remember that the production possibilities curve (PPC) represented the maximum output of two goods that could be produced given scarce resources. The economy could grow if the PPC shifted outward because of more resources or technological advances. For the same reason, the LRAS curve shifts outward if more resources are developed or if there are technological advances.

The SRAS curve also becomes vertical once the full-employment level is reached. This is because the quantity of goods and services produced cannot be increased regardless of how much aggregate demand or the price level increases.

SRAS can actually be greater than LRAS. Resources can be used more intensively in the short run. For example, workers can work more hours and machines can operate for more hours. However, this output level cannot be sustained in the long run. Eventually, the equilibrium level of output will fall unless LRAS is increased. As an analogy on a personal level, you may pull an all-nighter to prepare for several exams on the same day. You cannot, however, work 24 hours a day all the time.

Now answer the questions that follow to be sure you understand these concepts. Use the graphs *LRAS and SRAS Curves* and *PPC Graph* in your answers.

LRAS and SRAS Curves



PPC Graph

1. What information does a PPC provide for us about a nation's economy?

ACTIVITY 19 continued

2. What assumptions about the use of available resources are inherent in a PPC?

3. What forces or conditions will cause a nation's PPC to move?

4. What does the LRAS tell us about a nation's economy?

5. Why is the LRAS curve vertical?

6. If the price level rises, will LRAS shift? Will it shift if AD changes?

7. If an economy finds that it faces a short-run equilibrium where real national output is Q_2, how would you describe the condition of the economy? Given this equilibrium level of output, at what point would we lie on the PPC graph? Explain your answer.

8. If an economy finds that it faces a short-run equilibrium where real national output is Q_1, how would you describe the condition of the economy? Given this equilibrium level of output, at what point would we lie on the PPC graph? Explain your answer.

9. If an economy finds that it faces a short-run equilibrium where real national output is Q_3, how would you describe the condition of the economy? Given this equilibrium level of output, at what point would we lie on the PPC graph? Explain your answer.

10. If the economy were producing at Q_3, what would happen in the long run? Why?

11. What could cause LRAS to shift?

12. If the LRAS curve shifted to the right, what would happen on the PPC graph?

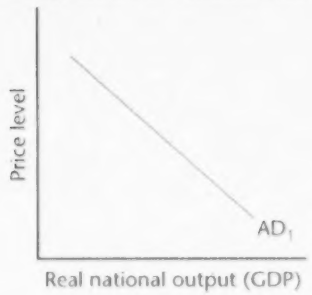
ACTIVITY 20

Manipulating the AD/AS Model: Exogenous Demand and Supply Shocks

Part A. Exogenous Demand Shocks

Read the description of each exogenous shock to aggregate demand and then draw a new AD curve that will represent the change caused by the demand shock. Label the new curve AD_2. Then briefly explain the reason for the change in the graph.

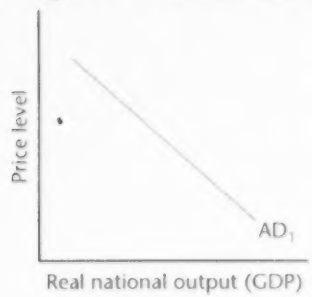
1. **Exogenous Demand Shock A**



EXOGENOUS SHOCK A:
General Motors lays off 30,000 workers.

EXPLANATION:

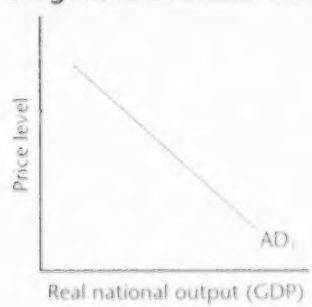
2. **Exogenous Demand Shock B**



EXOGENOUS SHOCK B:
Economic booms in both Japan and Europe result in massive increases in orders for exported goods from the United States.

EXPLANATION:

3. **Exogenous Demand Shock C**

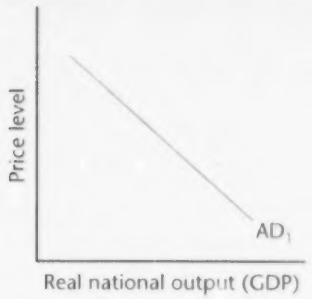


EXOGENOUS SHOCK C:
As part of its countercyclical policy, the government both reduces taxes and increases transfer payments.

EXPLANATION:

ACTIVITY 20 continued

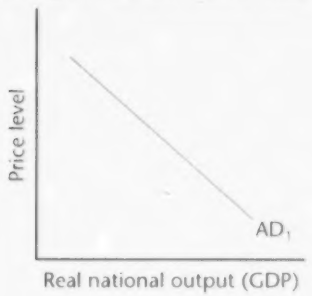
4. **Exogenous Demand Shock D**



EXOGENOUS SHOCK D:
While the United States was in the midst of the Great Depression, a foreign power attacked. Congress declared war and more than 1,000,000 soldiers were drafted in the first year while defense spending was increased several times over.

EXPLANATION:

5. **Exogenous Demand Shock E**



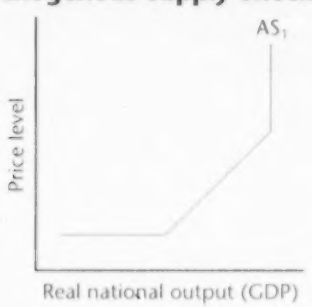
EXOGENOUS SHOCK E:
In order to balance the budget, the federal government cuts Social Security by 10 percent and federal aid to education by 20 percent.

EXPLANATION:

Part B. Exogenous Supply Shocks

Read the description of each exogenous shock to aggregate supply and then draw a new AS curve that will represent the change caused by the shock. Label the new curve AS_2. Then briefly explain the reason for the change in the graph.

1. **Exogenous Supply Shock F**

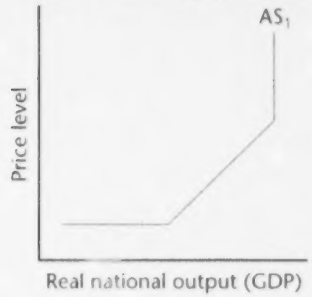


EXOGENOUS SHOCK F:
New environmental standards raise the average cost of autos and trucks five percent.

EXPLANATION:

ACTIVITY 20 continued

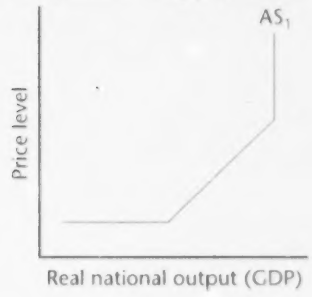
2. **Exogenous Supply Shock G**



EXOGENOUS SHOCK G:
Fine weather results in the highest corn and wheat yields in 40 years.

EXPLANATION:

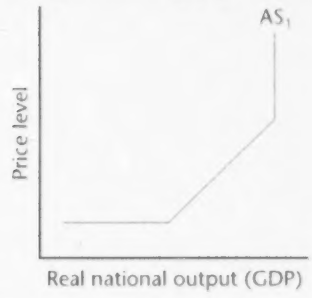
3. **Exogenous Supply Shock H**



EXOGENOUS SHOCK H:
Due to decreased international tensions, the government sells off thousands of Army surplus Jeeps and trucks at prices that are far less than the market price for their commercial counterparts.

EXPLANATION:

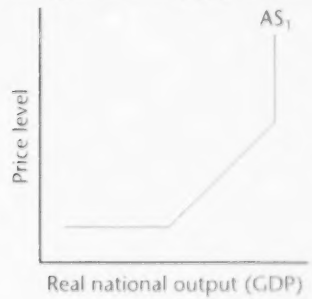
4. **Exogenous Supply Shock I**



EXOGENOUS SHOCK I:
An enemy power mines the sea lanes leading to the United States, and most ships refuse to deliver cargo through the mined areas.

EXPLANATION:

5. **Exogenous Supply Shock J**



EXOGENOUS SHOCK J:
After a long war, many ships, planes, trucks, and trains that had been commandeered for military use are returned to their civilian operators.

EXPLANATION:

ACTIVITY 20 continued

Part C. Manipulating the Aggregate Supply and Demand Model
Read each of the scenarios below and explain the impact the exogenous shocks will have on aggregate supply and demand. Then draw an aggregate demand and aggregate supply diagram to illustrate each impact.

1. During a long, slow recovery from a recession, consumers postponed major purchases. Suddenly they begin to buy cars, refrigerators, televisions, and heating units to replace their failing models.

2. With no other dramatic changes, the government raises taxes and reduces transfer payments in the hope of balancing the budget.

3. News of possible future layoffs frightens the public into reducing spending and saving for the feared "rainy day."

4. Due to rising tensions in many developing countries, firms begin to build new factories in the United States and to purchase sophisticated machinery that will enable them to produce here at prices that are competitive with those of low-salaried foreign countries.

5. Brazil solves its foreign debt and inflation problems. It then orders $10 billion worth of capital machinery from the United States.

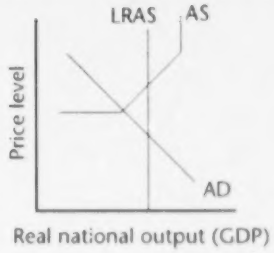
ACTIVITY 20 continued

Part D. Responses to All Shocks (Short-Run and Long-Run)
Read the description of each exogenous shock to aggregate supply and aggregate demand and draw a new AS or AD curve that represents the change caused by the shock. In some cases, several curves may be shifted. Then explain the reasons for the change in the graph and the effects of the change on the economy.

1. EXOGENOUS SHOCK K:
   Several Japanese firms open large plants in the United States.

   EXPLANATION:

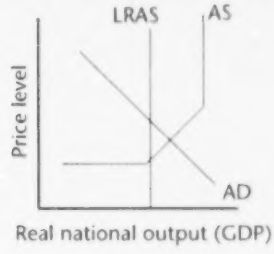
Response to Exogenous Shock K



2. EXOGENOUS SHOCK L:
   In order to lower inflation, the government raises personal income taxes by 20 percent.

   EXPLANATION:

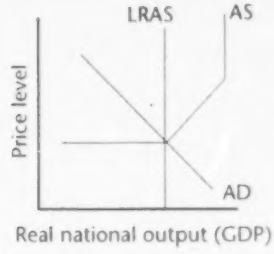
Response to Exogenous Shock L



3. EXOGENOUS SHOCK M:
   The government increases defense spending by 10 percent per year over a five-year period.

   EXPLANATION:

Response to Exogenous Shock M

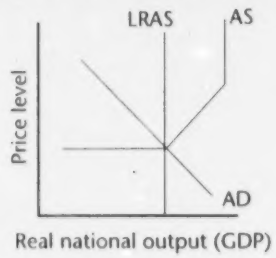


ACTIVITY 20 continued

4. EXOGENOUS SHOCK N:
OPEC cuts production by 30 percent, and the world price of oil rises by 40 percent.

EXPLANATION:

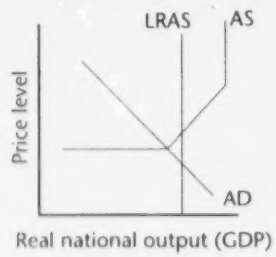
Response to Exogenous Shock N



5. EXOGENOUS SHOCK O:
The government announces a "War on Poverty" and increases spending on education, health care, housing, and basic services for the poor. No increase in taxes accompanies the program.

EXPLANATION:

Response to Exogenous Shock O



ACTIVITY 21

Full Employment in a Capitalist Economy

A capitalist economy is incapable of automatically achieving and sustaining a full-employment level of output. In fact, the capitalist economy is characterized by business cycle fluctuations that vary in severity and duration. The Great Depression (1929–1939), lasting a period of ten years, is evidence of the inability of the capitalist economy to maintain a full-employment level of output permanently.

The level of output in the economy is directly related to the level of aggregate expenditures or aggregate demand. Aggregate expenditures can vary widely as a result of both external and internal factors. Specifically, the level of income in the economy will directly impact the quantity of output purchased. If income increases, consumption expenditures will increase; however, if income declines, the amount consumed will also fall. If consumers fail to purchase the output produced, businesses will cut back on production and employment. This less-than-full-employment level of output may be sustained for an indefinite period of time because the economy is not self-adjusting.

If people save rather than spend all their income, some output will not be purchased. Because savers and business investors are different people and have different motives, the interest rate is not capable of equating the leakage of saving with an injection of business investment. People save for reasons that are not always related to interest rates, and businesses are concerned with expected profits as much as the costs of investment. If the economy is in a recession, the expected rate of net profit is low. Even if interest rates fall, business firms will not automatically expand their plant and equipment in the face of low demand for their products. Therefore, the interest rate is deficient as a mechanism for maintaining a full-employment level of expenditure.

Because of the monopoly power of both businesses and labor unions, prices and wages are inflexible downward. Collective bargaining agreements between labor unions and management establish wage rates over a two to three year period, thus preventing short-run reductions in wages. Faced with declining demand, industries with a high degree of monopoly power will restrict output rather than lower prices to maintain profit margins. This downward price and wage inflexibility means that the economy will fall short of the full-employment level of output when aggregate demand falls.

The above analysis is supported by a *horizontal* aggregate supply curve that becomes vertical only at the full-employment level of output. Changes in aggregate demand clearly illustrate equilibrium levels of output that either fall short of a full-employment economy or result in inflation. Because the capitalist economy is incapable of self-adjustment, demand-management policies pursued by government are necessary to achieve and maintain a full-employment level of output. Achievement of full employment in a capitalist economy without the assistance of government is more an accident than the norm. For the economy to achieve and sustain full employment, government must assume an active role in managing aggregate demand.

Activity developed by Donna Kattner, Conroe High School, Conroe, TX, and James Ranney, Austin E. Lathrop High School, Fairbanks, AK.

ACTIVITY 21 continued

Questions for small group discussion:

1. Do business-cycle fluctuations occur as a result of external or internal factors? Explain.

2. Are periods of economic instability temporary, or can they be of long duration?

3. Identify and explain the main determinant of the level of output and employment in the economy.

4. If people save their income instead of spending it, what will be the effect on the level of output and employment? Will interest rates automatically equate the leakage of saving with an injection of investment spending by business firms? Explain why or why not.

5. Are wages and prices downwardly flexible in the event of decreases in aggregate demand? Explain why or why not.

6. Does a capitalist economy contain inherent self-adjusting mechanisms that assist it in achieving and sustaining full-employment levels of output?

7. What should be the proper role of government in the capitalist economy? Explain why.

8. Describe the shape of the aggregate supply curve. Illustrate how the shape of the AS curve explains, in the event of changing aggregate demand, the conclusion drawn in question 6.

ACTIVITY 22
Full Employment in a Capitalist Economy

A capitalist economy is capable of automatically achieving and sustaining a full-employment level of output. Business-cycle fluctuations are temporary abnormalities induced by external factors such as wars, political changes, natural disasters, or gold rushes. Left alone to adjust after one of these events, the capitalist economy will automatically return to the norm of full employment.

Fundamental to the belief that a capitalist economy can maintain a full-employment level of output is Say's Law, the idea that "supply creates its own demand." If aggregate demand, tied to the money supply and relatively stable, is temporarily deficient, the economy has only to produce output to maintain employment. According to French economist Jean Baptiste Say (1767–1832), the act of producing output generates the exact amount of income necessary to purchase the output, thus creating its own demand.

In the event that some income is not spent on consumption, the adjustment mechanism of interest rates in the money markets of the economy will equate the leakage of saving with an injection of investment. This automatic return of savings into the economy through the vehicle of investment will be sufficient to maintain the level of expenditures necessary to purchase the output produced. If consumers save more, interest rates will fall and businesses will invest more. If saving declines, interest rates will rise and business investment will decline. Therefore, the mechanism of interest rates will maintain an equilibrium between saving and investment, allowing the level of expenditures to remain stable.

Another inherent mechanism in a capitalist economy that helps to achieve and sustain a full-employment level of output is downward price and wage flexibility. If aggregate demand were to fall, prices and wages would also fall. As the price level declines, the purchasing power of consumer dollars would rise; therefore, a lower wage coupled with increased purchasing power of the dollar would combine to maintain real incomes of the consumers. Because wages (a cost of production) fall along with prices, businesses would be able to maintain the same amount of output and employment as before and still receive the same level of profit in real terms.

The above analysis is supported by a *vertical* aggregate supply curve located at the full-employment level of output. Changes in aggregate demand, caused by external factors, shift the aggregate demand curve up or down the vertical aggregate supply curve. In each case, full-employment output is sustained due to the self-regulating mechanisms (interest rates and wage-price flexibility) inherent in the economy. Because the economy is capable of correcting itself and maintaining a full-employment level of output, there is no need for government intervention in the economy. In fact, government involvement may prevent the self-regulating mechanisms from fulfilling their roles, thus causing instability in the economy.

Activity developed by Donna Kattner, Conroe High School, Conroe, TX, and James Ranney, Austin E. Lathrop High School, Fairbanks, AK.

ACTIVITY 22 continued

Questions for small group discussion:

1. Do business cycle fluctuations occur as a result of external or internal factors? Explain.

2. Are periods of economic instability temporary, or can they be of long duration?

3. Identify and explain the main determinant of the level of output and employment in the economy.

4. If people save their income instead of spending it, what will be the effect on the level of output and employment? Will interest rates automatically equate the leakage of saving with an injection of investment spending by business firms? Explain why or why not.

5. Are wages and prices downwardly flexible in the event of decreases in aggregate demand? Explain why or why not.

6. Does a capitalist economy contain inherent self-adjusting mechanisms that assist it in achieving and sustaining full-employment levels of output?

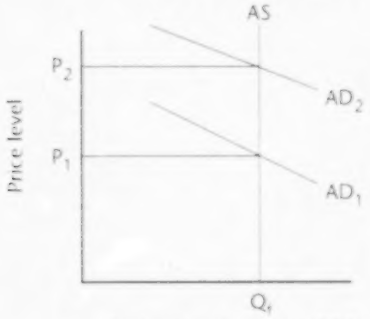
7. What should be the proper role of government in the capitalist economy? Explain why.

8. Describe the shape of the aggregate supply curve. Illustrate how the shape of the AS curve explains, in the event of changing aggregate demand, the conclusion drawn in question 6.

ACTIVITY 23
Classical and Keynesian Views of the Economy

Part A. The Classical View

Graph of Classical View



Q_f indicates full employment

1. Why does the classical theory view the AS curve as a vertical line?

2. If government policies increase AD, what will happen to output and the price level? Why?

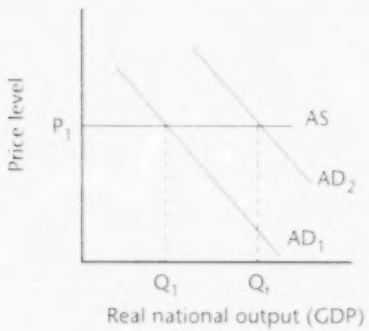
3. If government policies decrease AD, what will happen to output and the price level? Why?

4. The vertical range of the AS curve is often called the *classical range*. Why does the AS curve become vertical at full employment?

ACTIVITY 23 continued

Part B. The Keynesian View

Graph of Keynesian View



1. Why do Keynesians view the AS curve as a horizontal line?

2. If Keynesians view the AS curve as horizontal, what assumptions do they make about the price level? Are these assumptions realistic?

3. If government policies increase AD, what will happen to output and the price level?

4. If government policies decrease AD, what will happen to output and the price level?

5. Is the AS curve more likely to be horizontal during periods of unemployment or during periods of close to full employment? Why?

6. What conditions exist on the horizontal or *Keynesian range* of a three-stage AS curve?

Part C.
Do you agree more with the classical or Keynesian view of the economy? Why?

ACTIVITY 24
What Is an MPC?

The marginal propensity to consume (MPC) is the *change* in consumption divided by the *change* in disposable income. It is the fraction of any change in disposable income that is spent on consumer goods.

The marginal propensity to save (MPS) is the fraction saved of any change in disposable income. The MPS is equal to the change in saving divided by the change in disposable income.

Using the data in the table *Marginal Propensity to Consume and to Save* calculate the MPC and MPS at each level of disposable income. The first one is completed as an example. This is not a typical consumption function. Its purpose is to provide practice in calculating MPC and MPS.

Marginal Propensity to Consume and to Save

Level of output and income (NNP = DI) (1)	Consumption (2)	Saving (1) – (2) (3)	Marginal propensity to consume (MPC) Δ(2)/Δ(1) (4)	Marginal propensity to save (MPS) Δ(3)/Δ(1) (5)
$12,000	12,100	–100	.90	.1
$13,000	13,000	0	____	____
$14,000	13,800	200	____	____
$15,000	14,500	500	____	____
$16,000	15,100	900		

1. If disposable income changes from $10,000 to $12,000 and consumption changes from $9,000 to $10,000:

   a. What is the MPC?

   b. What is the MPS?

2. Why do the MPC and MPS always equal one?

ACTIVITY 25
The Consumption Function

In the nation of Chaos-on-the-Styx, the relationship between consumption expenditure and disposable income is shown in the table *Consumption Expenditure and Disposable Income*.

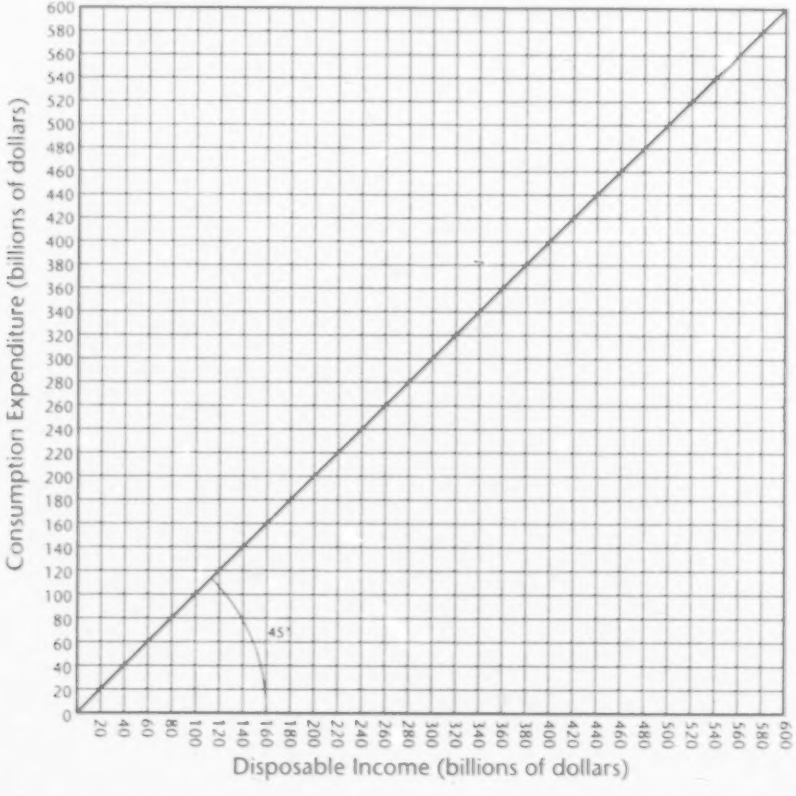
Consumption Expenditure and Disposable Income

Consumption expenditure (billions of dollars)	Disposable income (billions of dollars)	Savings (billions of dollars)
120	100	_____
200	200	_____
280	300	_____
360	400	_____
440	500	_____
520	600	_____

1. a. Plot the consumption function for Chaos-on-the-Styx on the graph *Plotting the Consumption Function*. Label it *C*.

   b. At what level is consumption equal to disposable income? _____

Plotting the Consumption Function



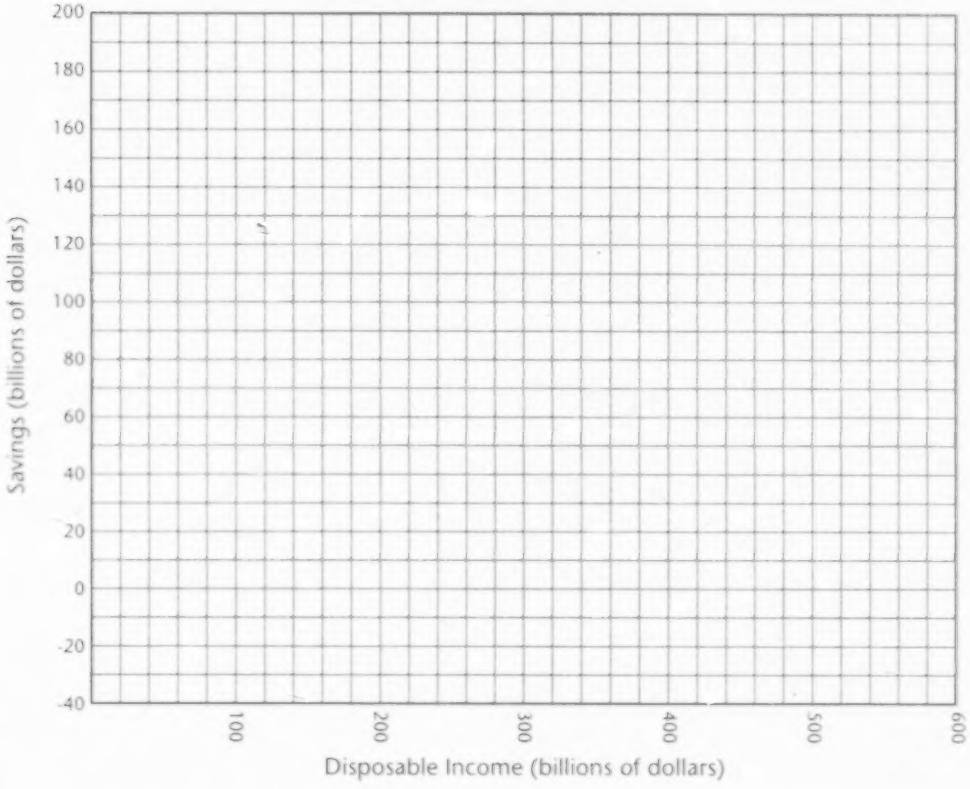
Adapted from Edwin Mansfield, *Study Guide for Economics*, 4th ed. (New York: W.W. Norton and Co., 1983), pp. 139-140.

ACTIVITY 25 continued

2. a. Based on the data shown on the table *Consumption Expenditure and Disposable Income*, plot the savings function for Chaos-on-the-Styx on the graph *Plotting the Savings Function*. Label it *S*.

   b. At what level of disposable income is savings equal to zero? _____

Plotting the Savings Function



3. Now the nation of Chaos-on-the-Styx consumes *$20 billion more* at each level of disposable income that shows in the graphs you just completed.
   a. Plot the new consumption function on the graph *Plotting the Consumption Function*. Label it C_1. At what level is consumption equal to disposable income? _____

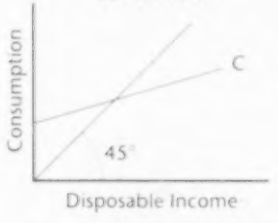
   b. Plot the new savings schedule on the graph *Plotting the Savings Function*. Label it S_1. At what level of disposable income is savings equal to zero? _____

ACTIVITY 25 continued

4. For each of the following events, write + in the answer blank at the left if it increased the consumption schedule or a – if it decreased the consumption schedule. Then plot the change on the corresponding graph provided below. Each graph should show an increase or decrease compared to the original consumption schedule.

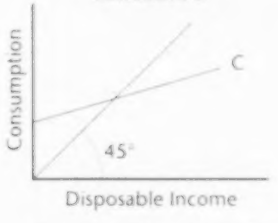
_____ a. Development of consumer expectations that prices will be higher in the future.

Change in Consumption Schedule A



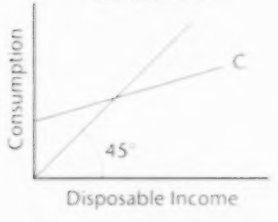
_____ b. Gradual shrinkage in the quantity of real assets owned by consumers.

Change in Consumption Schedule B



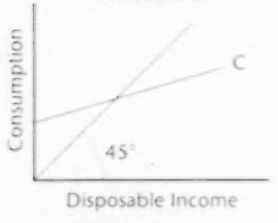
_____ c. Increase in the volume of consumer indebtedness.

Change in Consumption Schedule C



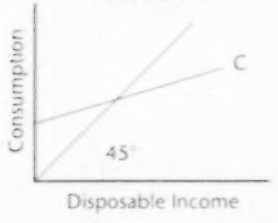
_____ d. Growing belief that disposable income will be lower in the future.

Change in Consumption Schedule D



_____ e. Rumors that a current shortage of consumer goods will soon disappear.

Change in Consumption Schedule E



ACTIVITY 26

Plotting the Investment Function

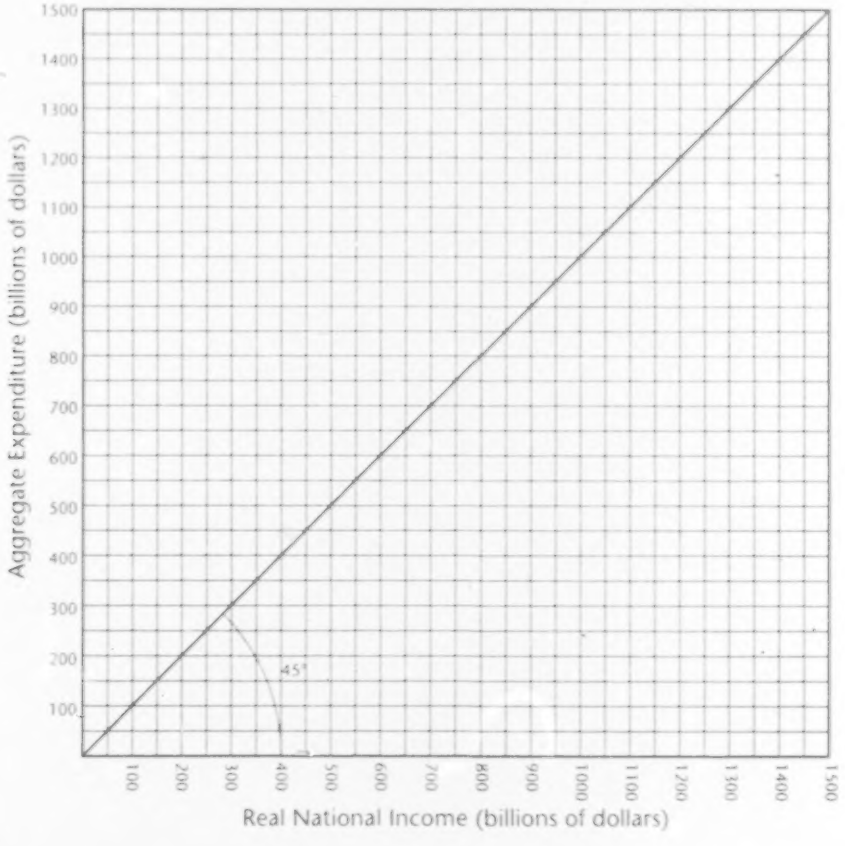
Assume that country XYZ has a consumption function as shown in the table *Consumption Function of Country XYZ*.

Consumption Function of Country XYZ
(all figures are in billions of dollars)

Real income	Consumption expenditure	Aggregate expenditure I = 200	Aggregate expenditure I = 300
900	750	____	____
1,000	800	____	____
1,100	850	____	____
1,200	900	____	____
1,300	950	____	____
1,400	1,000	____	____

1. Plot the consumption function on the graph *Plotting the Consumption Function of Country XYZ*. Label it C.

Plotting the Consumption Function of Country XYZ



Adapted from Edwin Mansfield, *Study Guide for Economics*, 4th ed. (New York: W.W. Norton and Co., 1983), p. 152.

ACTIVITY 26 continued

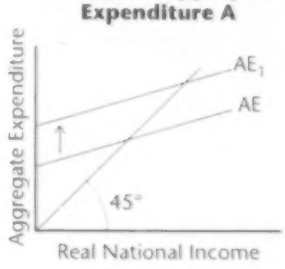
2. Plot the investment function (I) when I = 200. What is the equilibrium level of income? _____

3. Plot the investment function (I) when I = 300. What is the equilibrium level of income? _____

4. Now show graphically the effects of each of the following changes on aggregate expenditure. On each graph, show the original aggregate expenditure (label *AE*) and the new aggregate expenditure (label AE_1). It is the direction of the change that is important. The first change is illustrated for you.

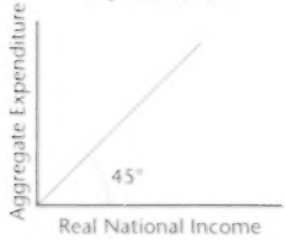
_____ a. Congress cuts personal income taxes.

Change in Aggregate Expenditure A



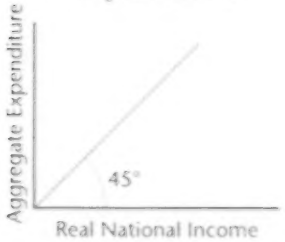
_____ b. Business leaders believe that the economy is headed for a recession.

Change in Aggregate Expenditure B



_____ c. Survey shows consumers are confident about the future of the economy.

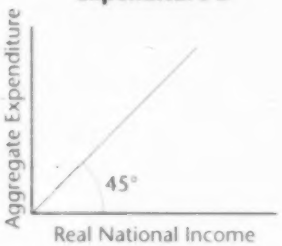
Change in Aggregate Expenditure C



ACTIVITY 26 continued

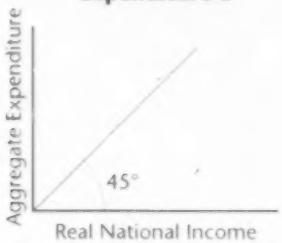
_____ d. Economic booms in Japan and Europe increase demand for U.S. exports.

Change in Aggregate Expenditure D



_____ e. Because of a reduction in the corporate income tax, businesses increase their investment in new plant and equipment.

Change in Aggregate Expenditure E



ACTIVITY 27
The Magic of the Multiplier

Part A.
The good people in Econland lived on an isolated island. One year, a stranger arrived and built a $1,000 house. If the marginal propensity to consume was 50 percent, what happened to the GDP in Econland? It increased by $2,000. Let's see how.

Change in Econland's MPC and GDP

	Income (GDP)	*Consumption*	*Savings*
Round 1	$1,000	$500	$500
Round 2	500	250	250
Round 3	250	125	125
Round 4	125	62.50	62.50
All rounds	$2,000	$1,000	$1,000

This change in GDP is due to the multiplier. It shows how a change in investment causes a multiplied effect on GDP. In this case, the multiplier is 2. See if you understand the multiplier by answering these questions.

1. Would the multiplier be larger or smaller if people saved more of their additional income? _____

2. a. What would happen to the multiplier if people saved all their income?

   _____

   b. What would happen if people spent all their income? _____

3. Government spending has the same effect as investment spending. If the multiplier were 4, how much more would the government have to spend to increase aggregate demand by $1 million? _____

4. If the government needed to cut aggregate demand by $2 million and the multiplier were 4, how much would government spending have to be reduced?

   _____

5. How does the multiplier explain why changes in investment spending cause large fluctuations in GDP?

ACTIVITY 27 continued

Part B. The Algebra of the Multiplier

The size of the multiplier is calculated by this formula:

$$\text{Multiplier} = \frac{1}{1 - \text{MPC}}$$

In the case of Econland,

$$M = \frac{1}{1 - {}^1/_2} = \frac{1}{{}^1/_2} = 2$$

1. What is the multiplier if the MPC is equal to 3/4? _____
2. What is the multiplier if the MPC is equal to 9/10? _____
3. What is the multiplier if the marginal propensity to save (MPS) is 1/5? _____
4. Why is the multiplier important in understanding business cycles?

ACTIVITY 28
Keynesian Equilibrium Without Government

These activities are designed to give you practice with manipulations of the income-expenditure diagram. They are based on data for real income (output), real consumption spending, and real investment spending given in the table *Income–Expenditure Schedule*.

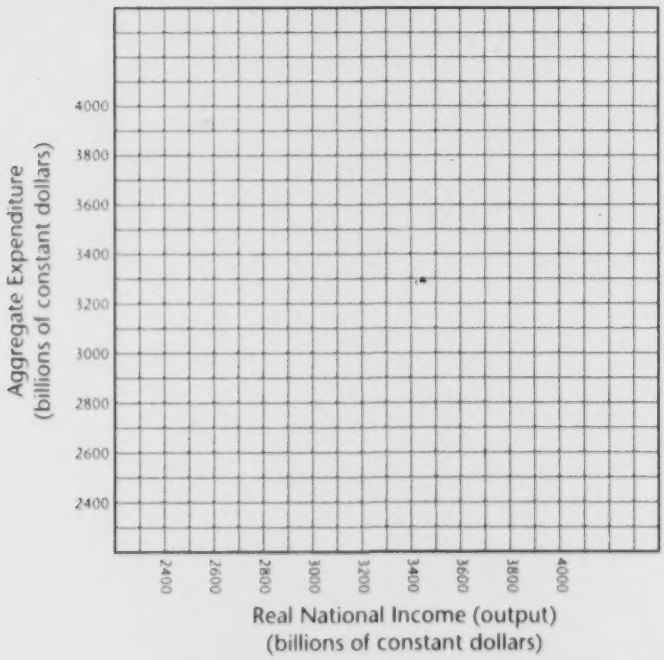
This Activity shows you how the expenditure schedule is derived and how it helps to determine the equilibrium level of income. For this Activity, it is assumed that prices are constant with the Consumer Price Index or price level having a value of 100. All figures in the table *Income–Expenditure Schedule* are in billions of constant dollars.

Caution: To get the correct answers for this Activity, you must use an aggregate expenditure rather than an aggregate demand diagram.

Income–Expenditure Schedule

Income (output)	Consumption spending	Investment spending	Total spending (aggregate expenditure)
2,600	2,600	300	____
2,800	2,700	300	____
3,000	2,800	300	____
3,200	2,900	300	____
3,400	3,000	300	____

Plotting Income–Expenditure



From William J. Baumol and Alan S. Blinder, *Economics, Principles and Policy*, 3rd ed. (New York: Harcourt Brace & Company, 1985), p. 55.

ACTIVITY 28 continued

1. Use the data on consumption spending and income to draw the consumption function on the graph *Plotting Income–Expenditure*. Label it C.

2. Using the consumption function you have just drawn and the data on investment spending, draw the expenditure schedule on the same graph. What is the difference between the expenditure schedule and the consumption function?

3. Now draw a line representing all the points at which total spending and income could be equal. This is the 45° line.

4. The 45° line represents all the points that *could be* the equilibrium level of total spending. Now circle the one point that *is* the equilibrium level of total spending. What is the equilibrium level of total spending on your graph? _____

5. A recessionary or inflationary gap is measured vertically at the full-employment level of total spending. There is a recessionary gap if the actual level of total spending is less than the full-employment level of total spending. There is an inflationary gap if the actual level of total spending is greater than the full-employment level of total spending.

   Fill in the answer blanks or cross out the incorrect words in parentheses.

   a. Based on the data in the table *Income–Expenditure Schedule* and assuming that the full-employment level of total spending is $3000 billion, the *(recessionary/inflationary)* gap of $_____.

   b. Based on the data in the table *Income–Expenditure Schedule* and assuming that the full-employment level of total spending is $3400 billion, the *(recessionary/inflationary)* gap of $_____.

ACTIVITY 29

Reconciling the Keynesian Aggregate Expenditure Model with the Aggregate Demand and Supply Model

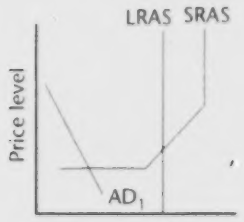
Now it is time to reconcile the Keynesian aggregate expenditure model with the aggregate demand and supply model. We find both differences and similarities when comparing the two models.

- The Keynesian model is a fixed or constant price model while the AD/AS model is a variable price model. The vertical axis of the Keynesian model is *aggregate expenditure* while the vertical axis of the AD/AS model is *price level*.
- Aggregate expenditure (C + I + G + Net Exports) on the Keynesian model is aggregate demand on the AD/AS model. A shift upward in aggregate expenditure is the same as a shift outward in aggregate demand. A shift downward of aggregate expenditure is the same as a shift inward of aggregate demand.
- The AD/AS model can account for shifts in aggregate supply. The Keynesian model cannot do so. The Keynesian aggregate supply curve is the 45° line.
- In the Keynesian model, a shift in aggregate expenditure utilizes the full multiplier, and that multiplier can easily be calculated from the graphs. In the AD/AS model, the multiplier is not at full strength on the intermediate and vertical segments of the AS curve.

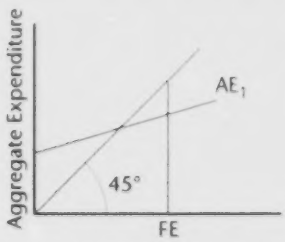
For each of the following situations, illustrate the change on both the Keynesian model and the AD/AS model.

1. The economy is at less than full employment. An increase in consumer confidence moves the economy to full employment.

Less Than Full Employment—AD/AS Model



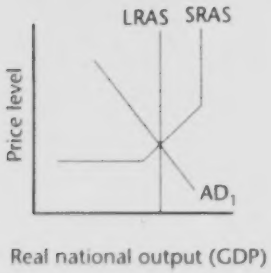
Less Than Full Employment—Keynesian Model



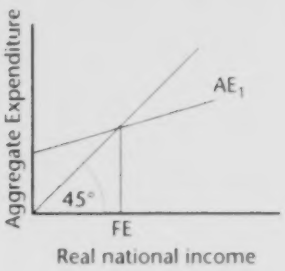
ACTIVITY 29 continued

2. The economy is at full employment but businesses begin to believe that a recession is ahead.

Full Employment—AD/AS Model



Full Employment—Keynesian Model



ACTIVITY 30
Discretionary and Automatic Fiscal Policy

One of the goals of economic policy is to stabilize the economy. This means trying to keep employment stable at a high level and trying to keep prices from rising or falling significantly. To accomplish this, the amount of aggregate demand in the economy must be near the potential aggregate supply level of output. If aggregate demand is too low, there will be unnecessary unemployment. If aggregate demand is too high, there will be inflationary consequences.

If aggregate demand is too low, government may be able to stimulate spending in the economy by increasing its spending or by cutting taxes to encourage households and businesses to spend more. These policies are examples of *expansionary fiscal policy.* If government wants to slow down aggregate demand, it would pursue a *contractionary fiscal policy.* To do this, it could cut government spending or raise taxes. Fiscal policies can be discretionary or automatic.

If government has to pass a law or take some other specific action to change its tax and/or spending policies, then government is stabilizing the economy through *discretionary stabilizers.* If the policy change happens by itself as the economic situation changes, then it is known as an *automatic stabilizer.* An example of an automatic stabilizer would be unemployment compensation. If the economy goes into a recession and people are laid off, they may be eligible to receive unemployment compensation. This payment helps them buy necessities for the family and helps keep aggregate demand from falling as much as it might otherwise. Thus, the payments help stabilize the economy.

Listed below are several fiscal policy actions. For each action listed, indicate whether it is an example of expansionary (*E*) or contractionary (*C*) fiscal policy and whether it represents an automatic (*A*) or discretionary (*D*) stabilizer.

Government Action	Expansionary (*E*) or Contractionary (*C*)	Automatic (*A*) or Discretionary (*D*)
Sample: Recession raises amount of unemployment compensation.	*E*	*A*
1. Cuts personal income tax rates.		
2. Eliminates favorable tax treatment on long-term capital gains.		
3. Incomes rise; as a result, people pay a higher fraction of their income in taxes.		
4. As a result of a recession, more families qualify for food stamps and welfare benefits.		
5. Eliminates the deductibility of interest expense for tax purposes.		
6. Launches a major new space program to explore Mars.		
7. Raises Social Security taxes.		
8. Corporate profits increase; as a result, government collects more corporate income taxes.		
9. Raises corporate income tax rates.		
10. Gives all its employees a large pay raise.		

Activity developed by David Nelson, University of Western Washington, Bellingham, WA.

ACTIVITY 31
The Tools of Fiscal Policy

Changes in federal taxes and federal government spending designed to affect the level of aggregate demand (and in some cases aggregate supply) in the economy are called *fiscal policy*.

Aggregate demand is the total amount of spending on goods and services in the economy during a stated period of time. Aggregate demand consists of consumer spending, government spending, and investment spending.

Aggregate supply consists of the total amount of goods and services available in the economy during a stated period of time.

During a recession, aggregate demand is usually too low to bring about full employment of resources. Government can increase aggregate demand by spending more, cutting taxes, or doing both. These actions often result in budget deficits because the government spends more than it collects in taxes. Increasing government spending without increasing taxes or decreasing taxes without decreasing government expenditures should increase aggregate demand. Such an expansionary fiscal policy should increase employment, inflation, or both.

If the level of aggregate demand is too high, government can reduce its spending, increase taxes, or do both. These actions should result in a larger budget surplus or a smaller budget deficit than existed before. Such a contractionary fiscal policy should lower the level of aggregate demand, and the economy will experience less employment of its resources, less inflation, or both.

Part A.
Decide whether each of the following fiscal policies of the federal government is expansionary or contractionary. Write *expansionary* or *contractionary* and explain the reasons for your choice.

1. The government cuts business and personal income taxes and increases its own spending.

2. The government increases the personal income tax, Social Security tax, and corporate income tax. Government spending stays the same.

3. Government spending goes up while taxes remain the same.

4. The government reduces the wages of its employees while raising taxes on consumers and business. Other government spending remains the same.

From *Master Curriculum Guide in Economics: Teaching Strategies for High School Economics Courses* (New York: National Council on Economic Education, 1985), pp. 151-152.

ACTIVITY 31 continued

Part B.
Test your understanding of fiscal policy by completing the first four questions in the table *Effects of Fiscal Policy*. All your choices for each situation must be consistent, that is, you should choose either an expansionary or contractionary fiscal policy. Fill in the spaces as follows:

Column A: Objective for Aggregate Demand
Write *increase* if you wish to increase aggregate demand.
Write *decrease* if you wish to decrease aggregate demand.

Column B: Action on Taxes
Write *increase* if you wish to increase taxes.
Write *decrease* if you wish to decrease taxes.

Column C: Action on Government Spending
Write *increase* if you wish to increase government spending.
Write *decrease* if you wish to decrease government spending.

Column D: Effect on Budget
Write *toward deficit* if you wish to increase the deficit (or reduce the surplus).
Write *toward surplus* if you wish to reduce the deficit (or increase the surplus).

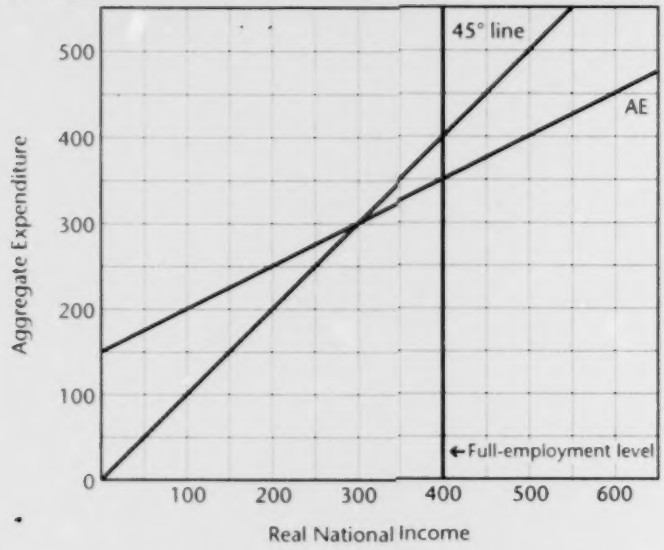
Effects of Fiscal Policy

	(A) Objective for Aggregate Demand	(B) Action on Taxes	(C) Action on Government Spending	(D) Effect on Budget
1. The national unemployment rate rises to 12 percent.				
2. Inflation is strong and its rate is now 14 percent per year.				
3. Surveys show consumers are losing confidence in the economy, retail sales are weak, and business inventories are increasing rapidly.				
4. Business sales and investment are expanding rapidly, and economists believe strong inflation lies ahead.				
5. Inflation persists while unemployment stays high.				

ACTIVITY 32
Two Ways to Analyze Fiscal Policy

The graph *Aggregate Expenditure Function for a Hypothetical Economy* shows an estimated full-employment national income of 400. A horizontal *SRAS is* assumed.

Aggregate Expenditure Function for a Hypothetical Economy



1. What will be the actual national income level in equilibrium? _____

2. The recessionary gap is _____.
   (Measure the gap vertically at full employment.)

3. How much of an increase in aggregate expenditure would be needed to eliminate the recessionary gap? _____
   (*Hint:* Calculate the MPC from the diagram using the rise divided by the run. Then calculate the multiplier that will operate on any change in AE.)

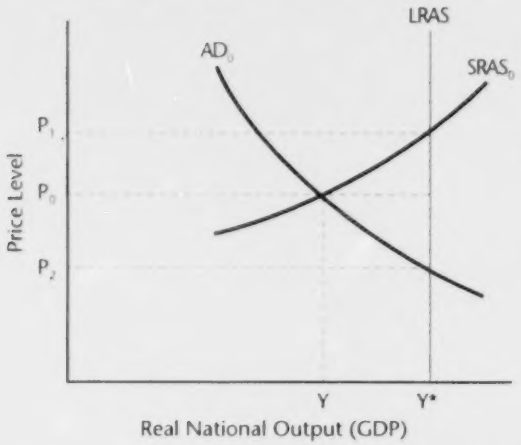
4. How much will GDP increase if aggregate expenditure increases by $50 billion? _____ Why?

5. What fiscal policy measures are available to deal with this situation?

6. Draw in a new AE curve showing the elimination of the recessionary gap through the use of fiscal policy.

From Dascomb R. Forbush and Fredric G. Menz. *Study Guide and Problems to Accompany Lipsey, Steiner, and Purvis, Economics*, 8th ed. (New York: Copyright © HarperCollins Publishing Co., 1987), p. 369.

Diagram of a Persistent Gap



7. Assume a persistent *(inflationary/recessionary)* gap as shown by the diagram *Diagram of a Persistent Gap*.

   a. One possible way of eliminating the gap is through a shift in aggregate supply with decreasing factor prices. Show diagrammatically that this could eliminate the gap. Label the new curve $SRAS_b$. The new price level would be _____.

   b. A second possibility would be to depend on a lesser shift of supply and have a modest shift in demand (naturally, or more likely, by discretionary fiscal stimulus) such that the price level was maintained at P_0. Show this diagrammatically. Label the curves $SRAS_c$ and AD_c.

   c. A third possibility is that government would seek changes in taxes and/or expenditures that would rapidly bring the economy to full employment. Show this diagrammatically. Label the curve AD_d.

8. Assume that a hypothetical economy is currently at an equilibrium national income level of $1,000 billion, but the full-employment national income is $1,200 billion. Assume the government's budget is currently in balance at $200 billion and the marginal propensity to consume is .75. Fill in the answer blanks or cross out the incorrect words in parentheses.

   a. The recessionary gap is _____ . (Measure the gap vertically at full employment.)

   b. The value of the multiplier is _____ .

   c. Aggregate expenditures would have to be *(increased/decreased)* by _____ billion to eliminate the *(inflationary/recessionary)* gap.

   d. The government could attempt to eliminate the gap by holding taxes constant and *(increasing/decreasing)* expenditures by _____ billion.

   e. Alternatively, the government could attempt to eliminate the gap by holding expenditures constant and *(increasing/decreasing)* its tax receipts by _____ billion. (Hint: not all of the tax change will come from consumption.)

   f. As a third policy option, the government could propose a balanced budget *(increase/decrease)* of _____ billion.

ACTIVITY 33
Analyzing the Macroeconomy

For each of the following situations, give an answer of one or two sentences. Then support your answer with sound economic reasoning. In some cases, you will also need to include a graph.

1. True, false, or uncertain, and why? "Regardless of our current economic situation, an increase in aggregate demand will always create new jobs."

2. True, false, or uncertain, and why? "In the long run, when nominal wages increase, everyone has more money to spend; therefore, the economy as a whole benefits."

3. In the 1960s, Americans became accustomed to decreasing unemployment rates coming with rising prices, but in the 1970s the United States experienced rising unemployment and rising price levels. Some newspapers then reported that macroeconomics was "bankrupt" because it could not explain this "mystery." Use short-run AD/AS analysis to explain this mysterious change in economic conditions between the 1960s and the 1970s. What events caused these conditions to change?

4. A politician was heard to say, "John Maynard Keynes's observation that wages and prices are sticky explains why our economy is able to adjust to a long-run equilibrium after a decrease in aggregate demand." Evaluate the accuracy of this statement.

5. Sid Simple, a student in Econ 001, was heard to say, "If we are in a recession, as long as we continue to increase aggregate demand, we can achieve full employment without driving up the inflation rate." Evaluate the accuracy of Sid's statement.

James Stanley, Kingswood-Oxford School, West Hartford, CT, and John Morton contributed to this Activity.

ACTIVITY 33 continued

6. Use short-run AD/AS analysis to illustrate the results of the following events. Then explain why these changes have taken place. Each answer should be accompanied by a clearly labeled diagram.
   a. There is a 25 percent decrease in the price of crude oil.

   b. Price levels in Germany, Japan, and Great Britain rise considerably, while price levels in the United States remain unchanged.

   c. The federal government launches a major new highway construction program.

   d. An insidious computer virus causes all IBM computers in the United States to crash.

   e. The economy suffers from demand-pull inflation.

   f. There is an increase in worker productivity.

7. True, false, or uncertain, and why? "When the economy experiences an increase in aggregate demand, it will discover that its production possibilities frontier has shifted outward."

ACTIVITY 33 continued

8. Illustrate the following changes in fiscal policy using both the AD/AS model and the Keynesian aggregate expenditure model. In other words, draw two graphs for each fiscal policy change and give a brief explanation of each graph. In your explanation, be sure to emphasize the line of reasoning that generated your results. It is not enough to list the results of your analysis.
   a. At less than full employment, the federal government decreases taxes while holding spending constant.

   b. At full employment, the government sharply increases defense spending without either raising taxes or reducing expenditures on other government programs.

   c. At less than full employment, the government increases its expenditures and taxes by the same amount.

   d. At full employment, the government passes a law providing universal health care with no increase in taxes.

   e. At less than full employment, the government raises Social Security benefits by ten percent.

   f. At less than full employment, the government increases its spending without changing the tax rate.

Sample Multiple-Choice Questions

Circle the letter of each correct answer.

1. Aggregate supply is:
   a. The amount buyers plan to spend on output.
   b. Equal to the money income received by the owners of the factors of production.
   c. Always equal to aggregate demand.
   d. A schedule indicating the level of real national output that will be purchased at each possible price level.
   e. Never equal to aggregate demand.

2. There will be a shift in aggregate demand when:
   a. The price of consumer goods changes.
   b. The price of inputs changes.
   c. Consumer expectations change.
   d. Productivity changes.
   e. Energy prices change.

3. The aggregate supply curve will shift to the right when:
   a. Energy prices increase.
   b. Input prices decrease.
   c. Productivity levels decrease.
   d. Investment spending decreases.
   e. The value of the dollar decreases.

4. According to Keynesian economists, the levels of output and employment are determined by:
   a. Economic stability that maintains a full-employment economy.
   b. Supply creating its own demand.
   c. Price-wage flexibility.
   d. The level of aggregate demand (C + I + G + Net Exports).
   e. The application of Say's Law.

5. Which of the following fiscal policy measures would increase aggregate demand?
   I. Decrease personal income tax
   II. Increase excise taxes
   III. Decrease government expenditures

   a. I only
   b. II only
   c. III only
   d. I and II only
   e. I, II, and III

6. What would be the effect of a large increase in labor productivity on real GDP and the price level?

	Real GDP	Price level
a.	Increase	Increase
b.	Increase	Decrease
c.	Decrease	Decrease
d.	Decrease	Increase
e.	Increase	No change

7. If Maria Escalera's disposable income increases from $600 to $650 and her level of personal consumption expenditures increases from $480 to $520, it may be concluded that her marginal propensity to:
   a. Consume is .2.
   b. Consume is .4.
   c. Consume is .8.
   d. Save is .25.
   e. Save is .8.

Joe Ed Dooley, South Garland High School, Garland, TX; Donna Kattner, Conroe High School, Conroe, TX; and James Ranney, Austin E. Lathrop High School, Fairbanks, AK, contributed significantly to this test.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

8. The consumption function is best explained by which of the following statements?
   I. Consumer spending is solely determined by the current money supply.
   II. Consumer spending is dependent on only current income and the MPC.
   III. Consumer spending is dependent on current income, the consumer's expectations of income, personal taxes paid, and the MPC.

   a. I only
   b. II only
   c. III only
   d. I and II only
   e. I and III only

9. If the MPC is .75, the multiplier will be:
   a. 2. b. 3. c. 3.5. d. 4. e. 5.

10. If the MPC is .75 and government purchases increase by $5 billion, the aggregate expenditure curve will:
   a. Shift vertically upward by $5 billion and total income will increase by $6.5 billion.
   b. Shift vertically upward by $5 billion and total income will increase by $20 billion.
   c. Not shift and total income will decrease by $5 billion.
   d. Not shift and total income will increase by $5 billion.
   e. Rotate downward and total income will be unchanged.

11. Assume the following conditions describe the current U.S. economy: there is rapidly rising inflation (13.3 percent annual rate); the unemployment rate is stable at 3.1 percent; there is a high level of real GDP. What part of the aggregate supply curve is most applicable to this economy?
   a. Keynesian range.
   b. Intermediate range.
   c. Classical range.
   d. Horizontal range.
   e. Both a and d.

12. Recent studies reveal that in a closed no-government economy, households save 20 percent of any increase in income. If a new technology causes investment to increase by $40 billion, economists would forecast a change in GDP of:
   a. $8 billion.
   b. $32 billion.
   c. $40 billion.
   d. $160 billion.
   e. $200 billion.

13. Which of the following are summed to get the aggregate expenditure function?
   I. Consumption
   II. Business investment
   III. Government transfer payments
   IV. Net exports
   V. Government purchases of goods and services

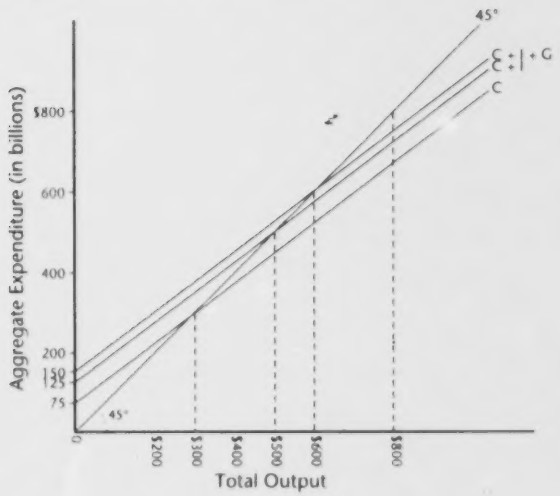
   a. I, II, and III only
   b. I, II, III, and IV only
   c. I, II, IV, and V only
   d. I, II, III, IV, and V
   e. II, III, IV, and V only

14. Equilibrium in the Keynesian model is best described by which of the following statements?
   I. Injections = Leakages
   II. Aggregate spending = Value of total output
   III. All resources are fully employed.

   a. I only
   b. II only
   c. III only
   d. I and II only
   e. I, II, and III

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

Use the information in the following graph to answer questions 15 – 17. Assume a closed economy with no tax function.



15. Which of the following statements about total income is/are correct?

    I. Equilibrium total income is $800 billion.

    II. Planned investment is $50 billion.

    III. Equilibrium aggregate expenditure is $600 billion.

    a. I only
    b. II only
    c. III only
    d. I and III only
    e. II and III only

16. In the graph, if full-employment GDP = $800 billion, what increase in autonomous expenditures (e.g., investment) would be required to move total income to full employment?

    a. $200 billion
    b. $100 billion
    c. $50 billion
    d. $25 billion
    e. Zero because total income is already at full employment.

17. In the graph, what is the value of the MPC, MPS, and simple expenditure multiplier?

	MPC	MPS	Multiplier
a.	.5	.5	2.0
b.	.6	.4	2.5
c.	.75	.25	4.0
d.	.8	.2	5.0
e.	.9	.1	1.1

18. If aggregate demand decreases and, as a result, real national output and employment decrease but the price level remains unchanged, we can assume that:

    a. Aggregate demand intersects aggregate supply in the intermediate range of the aggregate supply curve.
    b. Aggregate demand intersects aggregate supply in the classical range of the aggregate supply curve.
    c. Aggregate demand intersects aggregate supply in the Keynesian range of the aggregate supply curve.
    d. Aggregate supply decreases to accommodate the change in aggregate demand.
    e. The marginal propensity to consume is 1.

19. Which of the following fiscal policy actions would be most effective in combating a recession?

    a. Tax cut of $25 billion and cut in government purchases of $25 billion.
    b. Tax increase of $25 billion and an increase of $25 billion in government purchases.
    c. Tax increase of $25 billion and a cut of $25 billion in government purchases.
    d. Tax cut of $25 billion and an increase of $25 billion in government purchases.
    e. There is not enough information to answer this question.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

20. Assume the economy is described as follows: the federal budget is balanced; there is annual inflation of less than one percent; real GDP has fallen for the last three consecutive quarters; and business investment is declining. Which of the following fiscal actions would be most appropriate?
    a. Increase taxes on all levels of income.
    b. Increase government expenditures and transfer payments.
    c. Decrease federal spending on highway construction.
    d. Continue to balance the federal budget.
    e. Urge citizens to save more and spend less.

21. Which of the following represent(s) problems with discretionary fiscal policy in the United States?
    I. Special interests in Congress
    II. Time lags in recognition, decision, and implementation of solutions to fiscal problems
    III. Imprecise knowledge of current economic conditions

    a. I only
    b. II only
    c. III only
    d. I and II only
    e. I, II, and III

22. Which of the following represent(s) automatic stabilizers in the economy?
    I. Graduated (progressive) income tax
    II. Unemployment insurance compensation payments
    III. A law passed by Congress increasing tax rates

    a. I only
    b. II only
    c. III only
    d. I and II only
    e. I and III only

23. Assume the economy is in a severe recession. Which set of fiscal policies would be consistent and designed to cure the recession?

	Taxes	Government spending
a.	Lower	Lower
b.	Lower	Raise
c.	Raise	Raise
d.	Raise	Lower
e.	Lower	Lower

24. In order to be called a "built-in stabilizer," taxes must automatically do which one of the following?

	Recession	Inflationary period
a.	Increase	Increase
b.	Decrease	Increase
c.	Increase	Decrease
d.	Decrease	Decrease
e.	No change	No change

25. If unplanned investment in inventory is occurring, the Keynesian model forecasts:
    a. An increase in national output and income.
    b. A decrease in national output and income.
    c. An increase in the price index.
    d. A decline in the unemployment rate.
    e. An increase in planned spending.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

26. If the primary goal is to reduce inflation, which of the following fiscal policy actions would be appropriate during a period of a rapidly increasing Consumer Price Index?

I. Reduce government expenditures for defense and space research

II. Increase transfer payments to those most severely impacted by the rising price index

III. Increase personal income tax rates

a. I only
b. II only
c. III only
d. I and III only
e. II and III only

27. The simplified Keynesian expenditure model is most useful to economists when the economy is in which part of the aggregate supply curve?

I. Horizontal range

II. Intermediate range

III. Vertical range

a. I only
b. II only
c. III only
d. I and III only
e. II and III only

28. If equilibrium is in the classical range, what will be the effect of an increase in government spending on inflation and unemployment?

	Inflation	Unemployment
a.	No change	Increase
b.	Increase	Decrease
c.	Decrease	Increase
d.	Decrease	No change
e.	Increase	No change

29. What is the effect of an increase in short-run aggregate supply on the rate of inflation and the rate of unemployment?

	Inflation	Unemployment
a.	Increase	No change
b.	Decrease	Decrease
c.	No change	Increase
d.	Decrease	Increase
e.	Decrease	No change

30. The economy is in equilibrium in the intermediate range of the aggregate supply curve. The government increases both taxes and government spending by $25 billion. What will be the effect on the price level and real national output (GDP)?

	Price level	Real national output
a.	Increase	Increase
b.	Decrease	Decrease
c.	Increase	Decrease
d.	Increase	No change
e.	Decrease	No change

Sample Short Essay Questions

1. During the 1970s, many newspapers, which in the 1960s had become used to reporting a decrease in the unemployment rate when the overall price level increased, became confused when increases in the overall price level during that decade were accompanied by increases, not decreases, in the unemployment rate. Some went so far as to declare macroeconomics "bankrupt" and unable to explain this "mystery."

   Using short-run aggregate demand/aggregate supply analysis, explain the "mystery" of why the increases in the overall price level during the 1960s might have been accompanied by decreases in the unemployment rate and the increases in the overall price level during the 1970s might have been accompanied by increases in the unemployment rate.

2. An October 19, 1987, headline read, "Stock Market Declines 508 Points—Household Wealth Down One Trillion Dollars."
   a. What does this headline mean?
   b. Explain some of the possible effects of this event on the U.S. economy's output, prices, and employment.

3. Economists claim that investment spending is more important than consumption spending in causing changes in the business cycle. However, investment spending is only one fourth of consumption spending. Explain why investment spending can be so important if it is so much less than consumption spending.

4. In 1981, factories utilized 79 percent of their capacity. In 1982, factories utilized 71 percent of their capacity. In which year do you think the economy found itself on a steeper portion of its aggregate supply curve? Why?

5. Suppose an economic adviser to the President recommended a tax increase at a time when the economy was operating in the intermediate range of the aggregate supply curve. Indicate the expected effects on aggregate demand and on aggregate supply. Use a diagram to compare the original and the expected new equilibrium positions.

6. Recently, an economist was asked if the Great Depression could occur again. The reply was, "It is possible, but we have many more automatic stabilizers today than we had in 1930." What does the economist mean? Describe three automatic stabilizers and explain how they might prevent a depression.

7. A town's largest industry invests $50 million to expand its plant capacity. Without using a formula, explain how this expenditure will affect the town's economy through the multiplier effect.

Sample Long Essay Questions

1. Assume you are a member of Congress. A member of your staff has just given you the following statistics on the economy:

	Year ago quarter	Last quarter	Estimate for quarter now ending
Real Gross Domestic Product (in billions of 1987 dollars)	1,475	1,395	1,375
Consumer Price Index	195	201	203
Unemployment rate	7%	10.5%	10.5%
Gross private investment (in billions of 1987 dollars)	217	195	160

   a. What economic problem is the nation facing?
   b. What would be the goals of your fiscal policy?
   c. What exact fiscal policy would you recommend? Why?
   d. Use an aggregate demand/aggregate supply diagram to illustrate the effects of your fiscal policy on the economy.
   e. Use a Keynesian total expenditure 45° diagram to show the effects of your fiscal policy on the economy.

2. Assume you are a member of Congress. A staff member has just given you the following statistics on the economy:

	Year ago quarter	Last quarter	Estimate for quarter now ending
Real Gross Domestic Product (in billions of 1987 dollars)	1,485	1,534	1,550
Consumer Price Index	220	250	260
Unemployment rate	9%	7%	6.5%
Gross private investment (in billions of 1987 dollars)	194	218	228

   a. What economic problem is the nation facing?
   b. What would be the goals of your fiscal policy?
   c. What exact fiscal policy would you recommend? Why?
   d. Use an aggregate demand/aggregate supply diagram to illustrate the effects of your fiscal policy on the economy.
   e. Use a Keynesian total expenditure 45° diagram to show the effects of your fiscal policy on the economy.

Joe Ed Dooley, South Garland High School, Garland, TX; Donna Kattnet, Conroe High School, Conroe, TX; and James Ranney, Austin E. Lathrop High School, Fairbanks, AK, contributed to these questions.

SAMPLE LONG ESSAY QUESTIONS continued

3. Assume that the economy has been operating at full-employment levels of output and employment but has recently experienced a decrease in consumption spending due to a sharp drop in stock market values that destroyed approximately 15 percent of the wealth of the nation. Consumption expenditures have decreased at all levels of income.

   a. Use aggregate demand/aggregate supply analysis to illustrate the short-run effect of the drop in consumption expenditures on:
      1) Output.
      2) Employment.
      3) The price level.

   b. Now describe two fiscal policy actions that could be utilized to counter the effects of the initial drop in consumption. Explain, using aggregate supply and aggregate demand graphs, the short-run effects of each of your policies on:
      1) Output.
      2) Employment.
      3) The price level.

4. Assume that rising environmental regulations restrict the supply of oil in international markets. Consequently, increased production costs result in the following economic conditions in the United States:

   The unemployment rate is nine percent and rising.
   The CPI is rising 12 percent annually and accelerating.
   The annual rate of growth in GDP is -1.5 percent.

   a. Identify and describe in words and with an aggregate demand/aggregate supply diagram the major macroeconomic problems in the economy.

   b. With a federal budget deficit approaching $400 billion, fiscal authorities are considering the following policy alternatives to address the existing economic problems:
      1) Increased government expenditures.
      2) Increased personal income taxes.
      3) Decreased business taxes and regulations.

   c. Using aggregate demand/aggregate supply diagrams, explain the short-run effect of each policy on the following:
      i) Output.
      ii) Employment.
      iii) The price level.

Macroeconomics

Unit 4

Money, Monetary Policy, and Economic Stability

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Key Ideas

- To accomplish its functions, money should have certain characteristics which include portability, uniformity, acceptability, durability, divisibility, and stability in value.
- Throughout history, there have been four basic types of money: commodity money, representative money, fiat money, and checkbook money.
- Money has three main functions—as a medium of exchange, a standard of value, and a store of value.
- Economists often disagree about what money is. M1 is the narrowest definition and consists of checkable deposits, traveler's checks, and currency. Checkable deposits are called demand deposits and account for about 75 percent of M1.
- M2 and M3 are broader definitions of money and include savings accounts and other time deposits.
- MV = PQ is the equation of exchange; money times velocity equals price times quantity of goods. PQ is the nominal GDP.
- Velocity is the number of times per year the money supply is used to make payments for final goods and services:

$$V = \frac{GDP}{M}$$

- Money is created when banks make loans. One bank's loan becomes another bank's demand deposit. Demand deposits are money. When a loan is repaid, money is destroyed.
- Banks are required to keep a percentage of their deposits as reserves. Reserves can be currency in the bank vault or deposits at the Federal Reserve Banks. This reserve requirement limits the amount of money banks can create.
- The money multiplier is equal to one divided by the reserve requirement.

$$\text{Money multiplier} = \frac{1}{rr}$$

The higher the reserve requirement, the less money can be created; the lower the reserve requirement, the more money can be created.

- The Federal Reserve, or "Fed," regulates financial institutions and controls the nation's money supply. The three main tools that it uses to control the money supply are: changing the discount rate, changing the reserve requirement, and buying and selling government bonds on the open market (open market operations).
- If the Fed wants to encourage bank lending and increase the money supply, it will decrease the discount rate, decrease the reserve requirement, and buy bonds on the open market. The Fed expands the money supply to fight unemployment. This is called an expansionary monetary policy or an "easy money" policy.
- If the Fed wants to hold down or decrease the money supply, it will discourage bank lending by increasing the discount rate, increasing the reserve requirement, and selling bonds on the open market. The Fed discourages bank lending during inflation. This is called a contractionary monetary policy or a "tight money" policy.
- The reserve requirement is the most powerful tool of monetary policy; it is rarely used because of its power. Open market operations are the most frequently used tool because they permit the Fed to make small changes in the money supply.
- Monetarists believe that money directly affects the economy through the equation of exchange. Monetarists believe the money supply should be increased at the rate of three to five percent a year, exactly the same amount as the increase in real GDP.
- Keynesians believe that money affects interest rates and that interest rates, in turn, affect investment and GDP. Tight money increases interest rates, which decreases aggregate demand, which helps fight inflation. Easy money decreases interest rates and increases GDP during recessions.
- The Fed cannot target both the money supply and interest rates simultaneously so it must choose which goal to attempt to achieve.

ACTIVITY 34
Money Is What Money Does

Throughout history, a wide variety of items have served as money. These include gold, silver, large stone wheels, tobacco, beer, dog teeth, porpoise teeth, cattle, metal coins, paper bills, and checks. All of these types of money should be judged on how well they accomplish the functions of money. Money is what money does.

To be a good **medium of exchange**, money must be *accepted by people* when buying and selling their productive resources and when buying and selling goods and services. It should be *portable* or easily carried from place to place. It also must be *divisible* so that large and small transactions can be made.

To be a good **store of value**, money must be *durable* so it can be kept for future use. It also should have a *stable value* so people do not lose purchasing power if they use the money at a later time.

To be a good **standard of value** or unit of account, money must be useful for quoting prices. To accomplish this, money must be *familiar, divisible,* and *acceptable.*

Evaluate each item below as to how well it would perform the functions of money. In your evaluation, discuss how well the item would serve as a medium of exchange, a store of value, and a standard of value. As you make your evaluations, be sure to consider portability, uniformity, acceptability, durability, and stability in value.

1. Salt

2. Large stone wheels

3. Cattle

4. Gold

5. Copper coins

6. Pieces of paper printed by a government

7. A personal check

Activity developed by John Morton.

ACTIVITY 35
What's All This About the M's?

The Federal Reserve and its monetary policies have been in the news to an unprecedented degree. A great deal of attention has focused on the rate at which the money supply grows because of the increased awareness that money growth influences inflation, unemployment, and output. By law the Fed is charged with targeting rates of money growth that promote price stability, full employment, and economic growth. The Fed's choice of target rates of growth for the money supply and its ability to achieve them are constantly analyzed and commented on by economists, elected officials, and the media, among others.

The Fed reports to Congress twice a year on its target rates for growth of money. In addition, representatives of the Federal Reserve System often testify before congressional committees on the difficulty of achieving monetary targets when the financial system is rapidly changing and on the ongoing problem of simultaneously reaching full employment and price stability. These occasions provide a regular public forum in which members of Congress examine policies pursued by the Fed.

While monetary policy is the subject of debates that occur in the limelight, the first steps in the formulation of policy may appear relatively mundane: the money supply must be defined and measured. Defining and measuring money is difficult because people hold money in a variety of forms.

A Perennial Political Problem

Throughout our history the public has linked the money supply to the economic well-being of our country. Questions concerning the money supply and the proper role of government in the financial system have from time to time dominated the political scene.

Before the Revolutionary War, many of the 13 colonies issued their own paper money despite intense political opposition both from domestic adversaries and the king of England. After the adoption of the Constitution, one of the first major political controversies faced by Congress concerned the proper role of the federal government in the banking system. The debate focused on chartering the First Bank of the United States and its successor, the Second Bank of the United States, both of which exercised some of the functions of a central bank. The debate continued until the charter of the Second Bank expired in 1836.

In the 1870s the principal plank of the Greenback party platform called for an expansion of the money supply through an increase in the outstanding level of "greenbacks," that is, paper money. In the 1890s the money supply was again at the center of the political stage. The Populist party called for increasing the money supply through the "free and unlimited coinage of silver." The passage of the Federal Reserve Act in 1913, which created this nation's central bank, was preceded by a six-year debate. The controversy focused on preventing the kinds of financial "panics" that had severely tested the stability of banks and the monetary system from the Civil War through the panic of 1907.

Money Defined...

There is widespread agreement on a simple conceptual *definition* of money. However, the complexity of the real world prevents agreement on a single *measure* of money, and that causes some confusion. Conceptually, money is any item that is (1) widely accepted as a means of payment (a medium of exchange), and (2) used to transfer purchasing power from one period of time to the next (a store of value). Money performs other functions, but these are not crucial to the working definition of the M's. Problems arise in defining the measures of money because a variety of financial assets, from currency (and coin) to large certificates of deposit of $100,000 or more, serve as both a medium of exchange and a store of value.

The Fed sets targets for the monetary aggregates, or M's, by grouping assets that the public uses in roughly similar ways. In defining these measures of money, the Fed draws somewhat arbitrary lines between groups of assets that

From *Econ Ed*, The Federal Reserve Bank of New York, September 1987.

ACTIVITY 35 continued

can perform both the medium of exchange and store of value functions of money.

...And Measured

M1 is the narrowest definition and measure of the money supply. It contains only those assets that are used primarily for transactions, that is, as a medium of exchange—currency in the hands of the public and deposits in checking accounts. The payment of interest on some checking accounts is a fairly recent phenomenon and has changed the reasons people use and hold these accounts. With the payment of interest on some checking accounts, people have increased their use as a store of value. There are other assets that serve primarily as stores of value, but that can be converted into a medium of exchange with a minimum of inconvenience. These assets are included in broader measures of money.

M2 is one of the broader measures. In addition to the items in M1, M2 includes the amount in savings and small time deposits, including money market deposit accounts (MMDA's), noninstitutional money market mutual funds shares (MMMF's), and certain other short-term money market assets.

M3 is an even broader definition of the money supply. It includes all the components of M2 plus a number of financial assets and instruments generally employed by large businesses and financial institutions.

The Fed considers a number of factors when it defines the monetary aggregates, but ultimately what matters is how the public uses the different forms of money available to it. For example, depositors can write checks on their MMDA's or their MMMF's. The public, however, uses them primarily for savings and only secondarily for transactions. Consequently, the Fed places MMDA's and MMMF's in M2 with savings accounts and time deposits, which are also primarily held as stores of value. On the other hand, deposits in NOW (negotiable order of withdrawal) accounts and ATS (automatic transfer service) accounts are included in M1 because they are mainly used for transactions even though they pay interest and depositors use them for savings.

The M's will continue to be examined and revised as necessary by the central bank whenever financial innovations lead people to alter the forms in which they hold money. These innovations have also caused changes in the relationship between money and economic activity.

Our Current M's

The technical definitions of the M's can be found in the *Federal Reserve Bulletin:*

M1:

1. Currency (including coin) in the hands of the public
2. Traveler's checks
3. Balances in demand deposit accounts
4. Balances in NOW accounts
5. Balances in ATS accounts
6. Balances in credit union share draft accounts

M2: M1 plus

1. Savings and small time deposits (less than $100,000) at depository institutions (including MMDA's)
2. Overnight repurchase agreements (RP's) at commercial banks
3. Overnight Eurodollar deposits
4. Shares in MMMF's held primarily by households and small businesses

M3: M2 plus

1. Large time deposits ($100,000 or more) at depository institutions
2. Repurchase agreements with maturities longer than one day at commercial banks and savings and loan associations
3. Eurodollars with maturities longer than one day
4. Shares in MMMF's that are used by large financial institutions and corporations

ACTIVITY 35 continued

1. Why is it important for the Fed to know the size of the money supply?

2. What are three basic functions of money?

3. Name a type of money that serves primarily as a medium of exchange.

4. Name a type of money that serves primarily as a store of value.

5. Why are financial assets such as savings accounts included in the broader definition of money?

6. Why does the Federal Reserve watch the growth of the money supply?

7. What goals are sought by the Federal Reserve when it controls the supply of money?

8. Why do you think credit cards are not counted in M1?

9. Why is it difficult for the Fed to get an accurate measure of the money supply?

10. Use the data on the table, *Calculating the M's*, to calculate M1, M2, and M3. Assume that all items not mentioned are zero.

Calculating the M's

Checkable deposits (demand deposits, NOW, ATS, and credit union share draft accounts)	$444
Currency	168
Large time deposits	635
Noncheckable savings deposits	302
Small time deposits	1,614

a. M1 = _____ + _____ = _____

b. M2 = _____ + _____ + _____ = _____

c. M3 = _____ + _____ = _____

ACTIVITY 36
The Monetary Equation of Exchange

Part A.
The equation of exchange (MV = PQ) was the basis of classical macroeconomic analysis and is an important element in the present-day monetarist approach to macroeconomic thinking.

1. The equation of exchange has four parts, which are defined as follows (complete the following definitions by writing one or two sentences about each):
   M =

   V =

   P =

   Q =

Classical economists assumed that the velocity of money was stable (constant) over time because it was determined largely by institutional factors, for example, how often people are paid. Velocity would be higher if everyone were paid $50 eight times a month than if they were paid $200 twice a month. Make sure this concept, frequency of payment influencing velocity, is constant with your definition of velocity (V) above.

2. The product of velocity (V) and the money supply (M) equals PQ, which can be defined as:

3. Suppose velocity remains constant, while the money supply increases. Explain how this could affect GDP (PQ).

4. During the 1970s, two major changes that took place in the financial world were the increased use of credit cards and the increased use of computers by banks and financial institutions. Explain how these changes might be expected to affect velocity.

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ACTIVITY 36 continued

5. As the result of major legislation and regulatory reform in the early 1980s, banks and other financial institutions began paying interest on a significant proportion of the checkable deposits included in the M1 definition of the money supply. Explain how this change might be expected to affect velocity of M1.

6. What might one infer from the changes of the 1970s and 1980s about the classical assumption that institutional factors tend to keep velocity constant?

Part B.

The table *The U.S. Economy, 1979–1992*, gives data on the U.S. economy for 14 recent years. Due to rounding, some totals may not come out exactly.

1. Complete the table by filling in the five blanks.

The U.S. Economy, 1979–1992

Year	M1 (Billions of $) Dec. Figures	V	P Implicit Price Deflator for GDP (1987 = 1.0000)	Q (Real GDP)	PQ (Nominal GDP)
1979	_____	6.3966	.6449	3796.8	2448.6
1980	408.8	_____	.7171	3776.3	2708.6
1981	436.4	6.9445	_____	3843.1	3030.6
1982	474.6	6.6363	.8376	_____	3149.6
1983	521.2	6.5330	.8716	3906.6	_____
1984	552.4	6.8378	.9105	4148.5	3777.2
1985	620.1	6.5130	.9437	4279.8	4038.7
1986	724.5	5.8918	.9691	4404.5	4268.6
1987	750.0	6.0532	1.0000	4539.9	4539.9
1988	787.1	6.2259	1.0385	4718.6	4900.4
1989	794.6	6.6081	1.0853	4838.0	5250.8
1990	827.2	6.6758	1.1322	4877.5	5522.2
1991	899.3	6.3132	1.1777	4821.0	5677.5
1992	1026.6	5.7965	1.2089	4922.6	5950.7

After you have completed this table, answer the remaining questions.

ACTIVITY 36 continued

2. Between 1979 and 1980, velocity was increasing. During this same period, real output (Q, the quantity of goods and services produced) actually decreased. What explanation can you provide for this? (*Hint:* What happened to the price level?)

3. Between 1982 and 1983, velocity was decreasing, but during this same period both the price level (P) and real output (Q) were increasing. What explanation can you provide for this? (*Hint:* What happened to the stock of money?)

ACTIVITY 37

The Multiple Expansion of Demand Deposits

This Activity is designed to illustrate how banks lending out excess reserves can expand the nation's money supply. Assume that (1) all banks keep a fractional reserve of ten percent of deposits and lend out 90 percent of deposits from their excess reserves (reserves over ten percent of deposits) and (2) all money lent out by one bank is redeposited in another bank.

1. Under these assumptions, if a new deposit of $1,000.00 is made in Bank 1:
   a. How much will the bank keep in reserve? $ _____
   b. How much will Bank 1 lend out as excess reserves? $ _____
   c. How much will be redeposited in Bank 2? $ _____
   d. How much will Bank 2 keep in reserve? $ _____
   e. How much will Bank 2 lend out? $ _____
   f. How much will be redeposited in Bank 3? $ _____

2. Use your answers to question 1 to help you complete the table *Deposits, Reserves, and Loans in Seven Banks*. Fill in all the blanks in the table, rounding numbers to the second decimal (e.g., $59.049 = $59.05 and $53.144 = $53.14). After you have completed the table, answer the questions that follow by filling in the blanks or crossing out the incorrect words in parentheses so that each statement is a true statement.

Deposits, Reserves, and Loans in Seven Banks

Bank No.	New Deposits	10% Fractional Reserves	Loans
1	$1,000.00	$100.00	$900.00
2	900.00	_____	810.00
3	_____	81.00	_____
4	_____	_____	656.10
5	_____	_____	_____
6	_____	59.05	_____
7	531.44	_____	478.30
All Other Banks Combined	_____	_____	_____
Total for All Banks	10,000.00	_____	9,000.00

3. In this example:
   a. The original deposit of $1,000 increased total bank reserves by $ _____. Eventually this led to an expansion of bank deposits to a total of $10,000, $_____ of which was due to the original deposit and $ _____ of which was due to bank lending activities.

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ACTIVITY 37 continued

b. This total-to-original deposit expansion ratio of _____ to one was based on a fractional reserve of ten percent, a lending out of all excess reserves by all banks, and a redeposit of all loans to the banking system.

c. Therefore, if the fractional reserve had been 15 percent instead of ten percent, the amount of deposit expansion would have been *(more/less)* than in this example.

d. If the fractional reserve had been five percent instead of ten percent, the amount of deposit expansion would have been *(more/less)* than in this example.

e. If banks had not lent out all their excess reserves, the amount of deposit expansion would have been *(more/less)* than in this example.

f. If all loans had not been redeposited in the banking system, the amount of deposit expansion would have been *(more/less)* than in this example.

ACTIVITY 38

Reserve Requirements and the Multiplier

One of the primary functions of the Federal Reserve is to limit the growth of the money supply. In order to do this, the Board of Governors sets reserve requirements, percentages of the bank's deposits that must be held by the bank. Banks may not loan out these required reserves.

The use of this fractional reserve system actually allows banks to create money. The total amount of reserves held by a bank is known as the actual reserves. These actual reserves are composed of required reserves, which the bank must keep, and excess reserves, which the bank can loan to other customers. The reserves held by the bank beyond those required by the Fed are excess reserves.

Complete the following calculations illustrating reserve requirements.

1. If $1,000 is deposited in the bank, calculate how much the bank must hold in reserve for each of the following reserve requirements. How much is the *required reserve*?

   a. _____1% c. _____10% e. _____15%

   b. _____5% d. _____12.5% f. _____25%

2. If $1,000 is deposited in the bank, calculate how much the bank can loan out for each of the following reserve requirements. How much is the *excess reserve*?

   a. _____1% c. _____10% e. _____15%

   b. _____5% d. _____12.5% f. _____25%

Money is created when the bank makes loans to customers. To illustrate how money can be "created," a bank balance sheet is shown in the next question. We will begin with two assumptions:

- The reserve requirement is ten percent, and the bank will loan out all of its excess reserves.
- All money loaned out will be returned to the same bank in the form of demand deposits (for example, if Jamal borrowed $1,000 to buy a bike from Emilio, Emilio would deposit his $1,000 back into the same bank that issued Jamal the loan).

ACTIVITY 38 continued

3. Fill in the blanks on the balance sheet. Carry decimals out to two digits when appropriate.

Bank Balance Sheet

Account Holder	New Deposits	Required Reserves	Excess Reserves
Eric	$1,000.00	_____	$900.00
Juan	$900.00	$90.00	_____
LaTandra	$810.00	_____	_____
Angie	_____	$72.90	_____
Huang Suk	_____	_____	$590.49

Each new deposit is a demand deposit; thus, it is counted in M1. In this example, before the bank issued any loans, M1 equaled $1,000. But as it loaned the first $900 of excess reserves, the money supply rose to $1,900 because of the new demand deposit. In only five rounds of spending, M1 rose from $1,000 to $4,095.10!

What would happen if the bank continued to loan its excess reserves? The money supply would continue to increase. How much money would be created if the bank continued to loan out its excess reserves to the last penny?

To find this, we must calculate the money multiplier. The money multiplier determines how much money can be created in the economy from an initial deposit. The formula for the money multiplier is:

$$\text{Money multiplier} = \frac{1}{\text{Reserve requirement}}$$

In this example, the Federal Reserve set the reserve requirement at ten percent. So the money multiplier in this example would be:

$$\text{Money multiplier} = \frac{1}{.10} = 10$$

To find out how much money will be created, the formula is:

$$\text{Expansion of the Money Supply} = \text{Multiplier} \times \text{Excess Reserves}$$

The multiplier is 10, and excess reserves from the initial bank deposit are $900. So the potential expansion of money (M1) would be:

$$\text{Expansion of the Money Supply} = 10 \times \$900 = \$9,000$$

M1 now consists of the original $1,000 deposit plus the $9,000 created. So a $1,000 demand deposit resulted in M1 growth to $10,000!!

ACTIVITY 38 continued

For each of the following questions, carry out decimals to two digits when appropriate.

4. Calculate the money multiplier for each of the following reserve requirements.

   a. _____1% c. _____10% e. _____15%

   b. _____5% d. _____12.5% f. _____25%

5. A bank receives a new deposit of $1,000. Calculate the total amount of money that can be created for each of the following reserve requirements.

   a. _____1% c. _____10% e. _____15%

   b. _____5% d. _____12.5% f. _____25%

To see how the reserve requirement limits the expansion of the money supply, all we need to do is set a reserve requirement of zero. If there were no reserve requirement, the multiplier would be infinite:

$$\text{Money multiplier} = \frac{1}{0}$$

6. Why don't we want an infinite growth of the money supply? (*Hint:* remember the equation of exchange, MV = PQ.)

7. If the Federal Reserve wants to increase the money supply, should it raise or lower the reserve requirement? Why?

8. If the Federal Reserve increases the reserve requirement and velocity remains stable, what will happen to nominal GDP? Why?

9. What economic goal might the Federal Reserve try to meet by reducing the money supply?

ACTIVITY 39

The Federal Reserve System and Monetary Policy

The amount of money in an economy is important because it affects the level of spending in a country. Too much spending can cause inflation while too little spending can cause unemployment and declining levels of production. In the United States, Congress has assigned the responsibility for controlling our money supply to the Federal Reserve System.

The Federal Reserve System, or Fed, has functioned as the central bank of the United States since 1913. It consists of a seven-member Board of Governors in Washington, DC, plus twelve regional banks throughout the country.

As a central bank, the Fed manages the money supply by influencing the lending activity of commercial banks and other financial institutions. Another major part of its direct influence comes about through its relations and dealings with commercial banks from which the effects spill over to the financial system as a whole.

Monetary Policy

The deliberate actions of the Fed to expand or contract the money supply are called *monetary policy*. The purpose of monetary policy is to maintain or change the trend of economic output, employment, and prices at desired levels. A policy of the Fed designed to expand the growth of money and credit in the economy is known as an *expansionary* (or easy) monetary policy. A policy to restrict the growth of money and credit in the economy is known as a *contractionary* (or tight) monetary policy. The creation of too much money can cause inflation, and the creation of too little money can cause recession.

The Fed has three primary tools with which to carry out monetary policy. These are open market operations, the discount rate, and reserve requirements.

Open Market Operations

Open market operations refer to the Fed's buying and selling of U.S. government securities in order to add to or subtract from the reserves of the nation's commercial banking system. The operations are conducted by the Federal Open Market Committee, which consists of the seven members of the Fed Board and five Federal Reserve Bank presidents. Government securities, such as U.S. Treasury bills, notes, and bonds, are issued by the U.S. Treasury in return for money borrowed from individuals and businesses in order to finance government spending. If the Federal Reserve wants to put money into the economy, it buys some of these government securities by writing a check on itself. If, for instance, the Fed buys $10,000 worth of government securities with such a check, it creates the $10,000 used to pay for them. The sellers are not $10,000 richer, since they no longer own the securities, but the money supply grows because there is $10,000 of new money in the economy. If the Fed wants to pursue a contractionary monetary policy, it sells some of the government securities it owns. The money that is paid to the Fed for the securities is removed from the economy so the money supply shrinks. Open market operations are the most frequently used tool of monetary policy.

Open market operations and other monetary tools of the Fed affect interest rates. The Fed does not directly set interest rates. However, if the Fed sells securities on the open market, the growth of the money supply is reduced. Interest rates are determined by supply and demand in a way very similar to any other price. If the supply of money decreases, interest rates rise. On the other hand, if the Fed buys securities and expands the growth of the money supply, interest rates decrease.

One of the interest rates most associated with the Fed's monetary policy is the federal funds rate. Federal funds are reserve balances of financial institutions at the twelve regional Federal Reserve Banks. If a financial institution cannot meet its reserve requirement, it can bor-

Adapted from *Master Curriculum Guide in Economics: Teaching Strategies for High School Economics Courses* (New York: National Council on Economic Education, 1985), p. 146.

ACTIVITY 39 continued

row funds from other financial institutions. The *federal funds rate* is the rate of interest it must pay for these funds. Although newspapers often say the Federal Open Market Committee raised or lowered the federal funds rate, this is not true. What the Fed did was to change the rate of growth of the money supply, and the open market transaction used to implement this policy changed the federal funds rate. An expansionary monetary policy will tend to lower the federal funds rate. A contractionary monetary policy will tend to raise the federal funds rate. The federal funds rate is different from the discount rate.

The Discount Rate

The Fed directly sets the discount rate. The *discount rate*, the second tool of monetary policy, is the interest rate the Fed charges banks that borrow money. If a bank borrows from the Federal Reserve, the Fed credits the loan to the bank's reserves. In other words, the amount of the loan is added to the bank's reserves held at the Fed. This process increases the amount of money and credit in the economy. The Fed does not automatically allow a bank to borrow from it whenever the bank wants to. The Fed can refuse to make such a loan. If the discount rate is low and the Fed does not discourage banks from borrowing from it, the Fed will foster an expansionary monetary policy. If the discount rate is high and the Fed discourages banks from borrowing from it, the Fed will foster a tight monetary policy. The discount rate is probably the least strong of the three principal tools of monetary policy, but the Federal Reserve does use a change in it to indicate an overall tightening or loosening of monetary policy.

Reserve Requirements

The third important tool of monetary policy consists of changing the *reserve requirements* for bank deposits. The Federal Reserve requires that banks keep as reserves a certain fraction of the deposits they hold. These reserves must be kept as balances at Federal Reserve Banks or as cash the banks have on hand (i.e., vault cash). Banks that fail to meet their reserve requirements are subject to monetary penalties. These required reserves cannot be lent to borrowers.

If the Fed wants to pursue a contractionary monetary policy, it can raise reserve requirements, thereby restricting the amount of funds banks can lend. If the Fed wants to pursue an expansionary monetary policy, it can lower reserve requirements. Let's say you deposit $10,000 at your local bank and the reserve requirement on deposits is 15 percent. This means that your bank would have to keep $1,500 on reserve at the Fed (.15 x $10,000 = $1,500). It could lend the other $8,500 to borrowers. If the Fed were to lower its reserve requirement to 10 percent, then the bank could lend $500 more of your $10,000 deposit, or a total of $9,000. Such an expansion of bank lending causes the money supply in the economy to increase. However, if the Fed were to raise its reserve requirement to 20 percent, the bank could lend only $8,000 of your $10,000 deposit, thus curbing the possible increase in the money supply. Changes in reserve requirements can be a very powerful tool of monetary policy, but this tool is used infrequently precisely because it is so powerful. Most often, the Fed desires to make gradual or minor changes in policy, aims for which changes in reserve requirements are not suitable.

1. Describe the organization of the Federal Reserve System.

ACTIVITY 39 continued

2. What is monetary policy?

3. What happens to interest rates if the Fed follows a contractionary, or tight, monetary policy?

4. What happens to interest rates if the Fed follows an expansionary, or easy, monetary policy?

5. What is the federal funds rate?

6. Why do observers pay close attention to the federal funds rate?

7. Circle the correct symbol (↑ for increase, ↓ for decrease). What would happen to the money supply and to interest rates if the Fed:
   a. Sold government securities on the open market.
      Money supply ↑ ↓
      Interest rates ↑ ↓
   b. Bought government securities on the open market.
      Money supply ↑ ↓
      Interest rates ↑ ↓
   c. Raised the reserve requirement.
      Money supply ↑ ↓
      Interest rates ↑ ↓
   d. Lowered the reserve requirement.
      Money supply ↑ ↓
      Interest rates ↑ ↓
   e. Raised the discount rate.
      Money supply ↑ ↓
      Interest rates ↑ ↓
   f. Lowered the discount rate.
      Money supply ↑ ↓
      Interest rates ↑ ↓

ACTIVITY 39 continued

8. In the table *Tools of Monetary Policy* indicate how the Federal Reserve would use each of the three monetary policy tools to pursue an expansionary policy and a contractionary policy.

Tools of Monetary Policy

Monetary tool	Expansionary policy	Contractionary policy
Open market operations		
Discount rate		
Reserve requirements		

9. a. What kind of monetary policy would the Fed probably follow if the country had an annual inflation rate of 15 percent?

   b. Why?

10. a. What kind of monetary policy would the Fed probably follow if the country were in a severe recession with high unemployment and falling prices?

    b. Why?

ACTIVITY 40
Monetary Policy

This Activity deals with the three main tools used by the Federal Reserve Board to influence bank lending activities and control the checking deposit component of the nation's money supply:

- reserve requirements
- open market operations
- discount rates.

Fill in the answer blanks or cross out the incorrect words in parentheses.

Reserve Requirements

1. If commercial banks collectively have $80 billion in reserves, and the reserve requirement on checking deposits is ten percent, what is the maximum amount of checking deposit liabilities they can have? $ _____ billion.

2. A bank with checking deposit liabilities of $4,000,000 is fully loaned, with zero excess reserves, when the reserve requirement is 20 percent.

   a. If the reserve requirement is lowered to 15 percent, the bank's excess reserves would rise to $ _____ .

   b. If the reserve requirement is raised to 25 percent, the bank would have a reserve deficiency of $ _____ .

3. Assume that all banks collectively have $800 billion in checking deposits, $120 billion in reserves, and that they are fully loaned up with zero excess reserves.

   a. This means that the reserve requirement is _____ percent.

   b. If the Federal Reserve lowers the reserve requirement on checking deposits by five percent, the new reserve requirement will be _____ percent, and all of the banks collectively will have excess reserves in the amount of $ _____ billion. If the banks decide to return to a position of zero excess reserves, they will be able to *(expand/reduce)* their loans and investments by $ _____ billion until their checking deposit liabilities have changed to a new total of $ _____ billion.

4. Assume that all banks collectively have $800 billion in checking deposits, $120 billion in reserves, and that they are fully loaned up with zero excess reserves.

   a. This means that the reserve requirement is _____ percent.

   b. If the Federal Reserve raises the reserve requirement on checking deposits by five percent, the new reserve requirement will be _____ percent, and all of the banks collectively will be deficient in reserves in the amount of $ _____ billion. In order to meet the new reserve requirement and return to a position of zero excess reserves, the banks will have to *(expand/reduce)* their loans and investments by $ _____ billion until their checking deposit liabilities have changed to a new total of $ _____ billion.

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ACTIVITY 40 continued

Open Market Operations

5. Suppose that the Federal Reserve authorities decide to buy $10 million of U.S. government securities from the American public. The Federal Reserve pays for these bonds by issuing checks which the public deposits in their checking deposit accounts at commercial banks.

   a. On *Balance Sheet A*, show how this transaction (after the checks are cleared) affects the balance sheets of the Federal Reserve Banks, the commercial banks combined, and the public. (Show only the changes in the balance sheets; be sure to indicate the minus or plus sign in front of the change, – for decrease and + for increase.).

Balance Sheet A

Federal Reserve Banks

Assets	Liabilities
Government Securities	Member Bank Reserves
$ _____ million	$ _____ million

Combined Commercial Banks

Assets	Liabilities
Reserves	Checking Deposits
$ _____ million	$ _____ million

Public

Assets	Liabilities
Government Securities	
$ _____ million	
Checking Deposits	
$ _____ million	

   b. As a direct result of the Fed's purchase of government securities, the money supply of the country has *(increased/decreased)* by $ _____ million.

   c. Suppose that before the Fed's purchase, the commercial banks had no excess reserves. If the reserve requirement on checking deposits is ten percent, this means that the commercial banks now have excess reserves of $ _____ million, and the maximum money multiplier is _____ .

   d. Suppose that the commercial banks decide to reduce the excess reserves in the preceding question to zero by making loans to the public. This would result in additional changes in the balance sheets of the combined commercial banks and the public. On *Balance Sheet B*, show the *additional changes* in the balance sheets; be sure to indicate the minus or plus sign in front of the change, – for decrease and + for increase.

ACTIVITY 40 continued

Balance Sheet B

Combined Commercial Banks

Assets	Liabilities
Loans to Public	Checking Deposits
$ _____ million	$ _____ million

Public

Assets	Liabilities
Checking Deposits	Loans from Banks
$ _____ million	$ _____ million

e. The total effect of the Fed's open market purchase on the money supply is to cause it to *(rise/fall)* by $ _____ million.

6. Suppose that the Federal Reserve authorities decide to sell $10 million of U.S. government securities to the American public. The public pays for these bonds by issuing checks drawn on their checking deposit accounts at commercial banks.
   a. On *Balance Sheet C*, show how this transaction (after the checks are cleared) affects the balance sheets of the Federal Reserve Banks, the commercial banks combined, and the public. (Show only the *changes* in the balance sheets; be sure to indicate the minus or plus sign in front of the change, – for decrease and + for increase.)

Balance Sheet C

Federal Reserve Banks

Assets	Liabilities
Government Securities	Member Bank Reserves
$ _____ million	$ _____ million

Combined Commercial Banks

Assets	Liabilities
Reserves	Checking Deposits
$ _____ million	$ _____ million

Public

Assets	Liabilities
Government Securities	
$ _____ million	
Checking Deposits	
$ _____ million	

   b. As a direct result of the Fed's sale of government securities, the money supply of the country has *(increased/decreased)* by $ _____ million.

ACTIVITY 40 continued

c. Suppose that before the Fed's sale, the commercial banks had no excess reserves. If the reserve requirement on checking deposits is ten percent, this means that the commercial banks now have a reserve deficiency of $ _____ million, and the maximum money multiplier is _____ .

d. Suppose that the commercial banks decide to eliminate the reserve deficiency in the preceding question by calling in loans from the public (not renewing loans when they came due). This would result in additional changes in the balance sheets of the combined commercial banks and the public. On *Balance Sheet D*, show only the *additional changes* in the balance sheets; be sure to indicate the minus or plus sign in front of the change, – for decrease and + for increase.

Balance Sheet D

Combined Commercial Banks

Assets	Liabilities
Loans to Public	Checking Deposits
$ _____ million	$ _____ million

Public

Assets	Liabilities
Checking Deposits	Loans from Banks
$ _____ million	$ _____ million

e. The total effect of the Fed's open market sale on the money supply is to cause it to *(rise/fall)* by $ _____ million.

Discount Rates

7. a. Suppose that the market interest rate on short-term U.S. government securities is nine percent and that the Federal Reserve discount rate is seven percent. It *(would/would not)* be profitable for member banks to borrow from the Fed (i.e., discount) in order to buy short-term government securities from the public. If the member banks did borrow from the Fed to buy government securities from the public, this would cause the money supply of the country to *(rise/fall)*.

b. Suppose that the market interest rate on short-term U.S. government securities is nine percent and that the Federal Reserve discount rate is eleven percent. It *(would/would not)* be profitable for member banks to borrow from the Fed (i.e., discount) in order to buy short-term government securities from the public.

c. Thus, if the Fed keeps the discount rate substantially above market interest rates, this will *(encourage/discourage)* member banks' requests to borrow from the Fed. On the other hand, if the Fed keeps the discount rate below market interest rates, this will *(encourage/discourage)* member bank borrowing.

ACTIVITY 40 continued

A Final Summary Problem: What Is the Total Money Supply?

8. Assume there is a very small country with a monetary system similar to that of the United States. The money supply of this country is currently $500 thousand, of which $100 thousand is currency and $400 thousand is checking deposits. The reserve requirement is 25 percent and the banks have no excess reserves, so the sum of the required reserves of the commercial banks is $100 thousand.

   a. Suppose Sally Student deposits $1,000 of currency in the banking system. In making this deposit, Student is exchanging money in one form (currency) for money in another form (checking deposits), so this transaction between Student and the banking system directly causes the money supply of the country to *(increase/remain the same/decrease)*. The composition of the money supply, however, would change in favor of *(checking deposits/currency)* at the expense of *(checking deposits/currency)*; and, in accepting Student's deposit, the banking system has increased both its liabilities (checking deposits) and its assets (reserves) by $ _____ .

   b. Since the reserve requirement is 25 percent, $ _____ of the currency which the banking system received from Student should be classified as additional required reserves and $ _____ should be classified as excess reserves.

   c. Assuming the banking system takes full advantage of its opportunity to extend new loans to the public, the banking system's loans will increase by $ _____ , and its deposits will increase by $ _____ .

ACTIVITY 41
Graphing Keynesian Monetary Policy

Part A. Keynesian Beliefs

Keynesians believe fiscal policy works directly on aggregate demand while monetary policy works indirectly through interest rates. According to Keynesian theory, monetary policy works like this:

- The supply of and demand for money determine the interest rate. The Federal Reserve controls the supply of money. The demand for money can be affected by the amount of money borrowed by businesses, governments, and consumers. A stronger economy increases the demand for money.
- Holding profit expectations constant, a change in the interest rate will change investment spending and spending on consumer durables. A lower interest rate increases borrowing and therefore increases investment and spending on consumer durables. A higher interest rate decreases borrowing and therefore decreases spending on investment and consumer durables.
- The change in autonomous investment and consumer spending changes the level of aggregate demand. An increase in investment and consumer spending increases AD. A decrease in consumer and investment spending decreases AD.

Keynesians say monetary policy does not work as well as fiscal policy because monetary policy involves borrowing decisions made by firms and by consumers, which are influenced by other factors. This is similar to the old saying, "You can lead a horse to water but you can't make it drink." Increasing the money supply may lower interest rates, but the money will sit in banks unless consumers and businesses want to borrow it. Fiscal policy affects AD directly while monetary policy affects AD indirectly through interest rates.

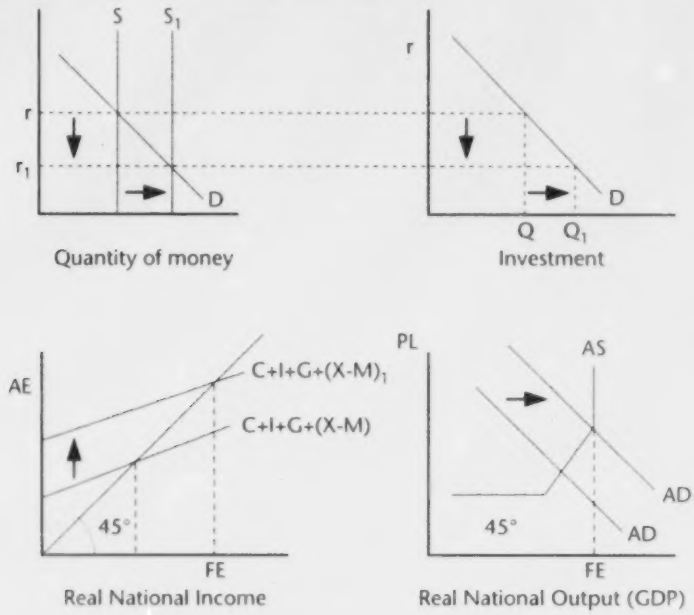
Part B. Graphing Expansionary (Easy Money) and Contractionary (Tight Money) Monetary Policies

Expansionary Monetary Policy

An expansionary monetary policy, or easy money policy, is used to help cure a recession. The Fed increases the money supply, which decreases interest rates. The decrease in interest rates increases investment. The increase in investment increases aggregate expenditure (C + I + G + Net Exports) or AD. This increases real GDP. Diagrammatically, an easy money policy looks like the *Easy Money Policy* diagrams.

ACTIVITY 41 continued

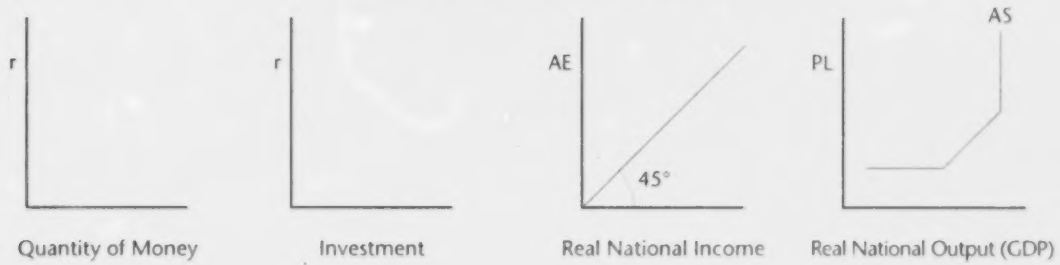
Easy Money Policy



Contractionary Monetary Policy

A contractionary monetary policy or tight money policy is used to fight inflation. The Fed decreases the money supply to increase interest rates. The increase in interest rates decreases investment. The decrease in investment decreases AE or AD. Draw four graphs to illustrate a tight money policy.

Plotting a Tight Money Policy

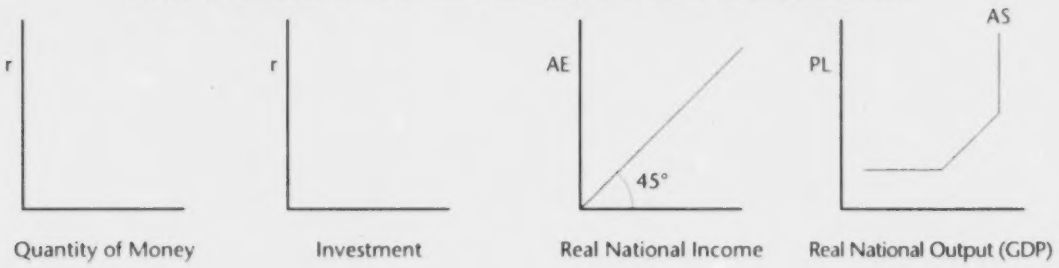


ACTIVITY 41 continued

Part C. Graphing the Effects of Various Monetary Policies
Fill in the answer blanks or cross out the incorrect words in parentheses for the sentences that follow. Then use the graphs provided to illustrate the effects of various monetary policies on aggregate demand, output, and the price level.

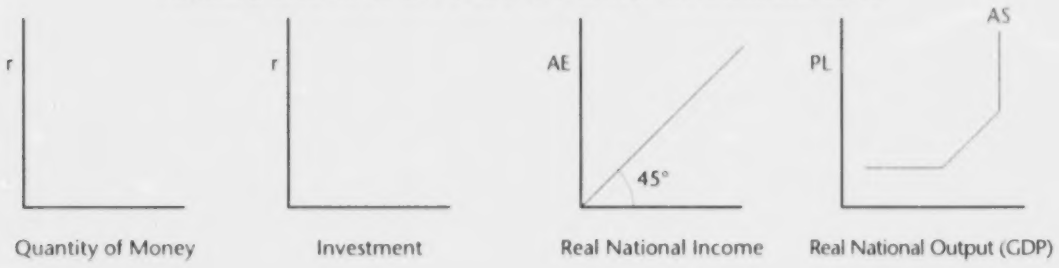
1. The Fed raises the reserve requirement. This policy is designed to *(increase/decrease)* AD in order to fight *(unemployment/inflation)*.

Plotting Effects of the Fed's Raising the Reserve Requirement



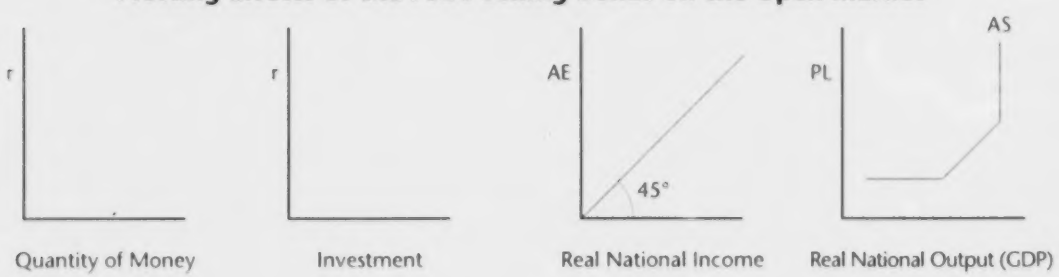
2. The Fed lowers the discount rate. This policy is designed to _____ AD in order to fight _____.

Plotting Effects of the Fed's Lowering the Discount Rate



3. The Fed sells bonds on the open market. This policy is designed to _____ AD in order to fight _____.

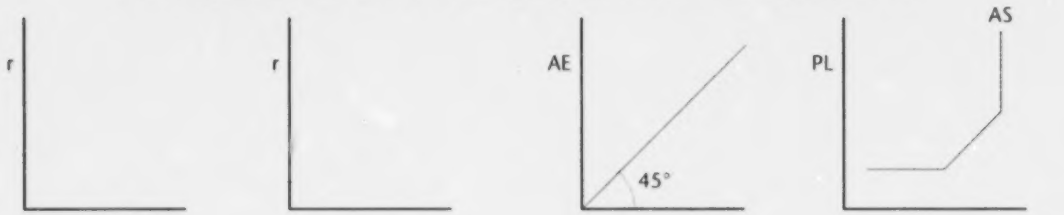
Plotting Effects of the Fed's Selling Bonds on the Open Market



ACTIVITY 41 continued

4. The Fed buys bonds on the open market. This policy is designed to _____ AD in order to fight _____.

Plotting Effects of the Fed's Buying Bonds on the Open Market



Quantity of Money | Investment | Real National Income | Real National Output (GDP)

ACTIVITY 42
Monetarist Monetary Policy

Part A. Monetarist Beliefs

Monetarism is based on the quantity theory of money (MV = PQ). According to the monetarists, changing the money supply can have some short-run effects on aggregate demand, but the only long-run effect is to change the price level. Full employment is determined by the level of long-run aggregate supply. Output can only increase by three to five percent a year. Monetarists believe that increasing the money supply by three to five percent a year will allow economic growth to occur; increasing the money supply by more than five percent will just cause prices to increase; and increasing the money supply by less than three percent will cause output to decrease and a recession to result.

Milton Friedman is the intellectual leader of the monetarist school. He believes that the only long-run cause of inflation is too great an increase in the money supply. Friedman explains it this way[1]:

> We return to our basic proposition. Inflation is primarily a *monetary phenomenon,* produced by a more rapid increase in the quantity of money than in output. The behavior of the quantity of money is the senior partner; of output, the junior partner. Many phenomena can produce temporary fluctuations in the rate of inflation, but they can have lasting effects only insofar as they affect the rate of monetary growth.

Friedman also feels that the Federal Reserve System's failure to increase the money supply was the major cause of the Great Depression of the 1930s. The depression was not caused by a failure in the private sector but by a failure in the public sector. The Federal Reserve allowed the money supply to collapse. According to Friedman[2]:

> The total stock of money showed an equally drastic decline. For every $3 of deposits and currency in the hands of the public in 1929, less than $2 remained in 1933—a monetary collapse without precedent.

While the Keynesians believe monetary policy plays second fiddle to fiscal policy, monetarists believe money is almost all that matters and that it has a powerful and direct effect on the economy.

[1]Excerpt from FREE TO CHOOSE: A PERSONAL STATEMENT, copyright © 1980 by Milton Friedman and Rose D. Friedman, reprinted by permission of Harcourt Brace & Company.
[2]*Ibid.*, p.84.

ACTIVITY 42 continued

Part B. A Monetarist Problem

You must imagine that you are a monetarist and assume that V is stable and equal to 4. The table *Aggregate Supply Schedule (V = 4)* shows the real output, Q, which producers will offer for sale at seven different price levels, P.

Aggregate Supply Schedule (V = 4)

P	Q	PQ	MV
$1.00	100	$ _____	$ _____
$2.00	110	$ _____	$ _____
$3.00	120	$ _____	$ _____
$4.00	130	$ _____	$ _____
$5.00	140	$ _____	$ _____
$6.00	150	$ _____	$ _____
$7.00	160	$ _____	$ _____

1. Compute and enter in the table the seven values of PQ.

2. Assume M is $90. Remember, the velocity is stable at 4. Enter the values of MV on each of the seven lines in the table. The equilibrium
   a. Nominal domestic output (PQ or MV) is $_____.
   b. Price level is $_____.
   c. Real domestic output (Q) is $_____.

3. When M increases to $175, MV at each price level is $_____, and the equilibrium
   a. Nominal domestic output is $_____.
   b. Price level is $_____.
   c. Real domestic output is $_____.

4. This increase in the money supply increased output by _____ percent.

5. This increase in the money supply increased the price level (rate of inflation) by _____ percent.

6. What should the Federal Reserve do if it wants to increase output without significantly increasing the price level?

Part B was adapted from William B. Walstad and Robert C. Bingham, *Study Guide to Accompany McConnell and Brue Economics*, 12th ed. (New York: McGraw-Hill, 1993), p. 180.

Sample Multiple-Choice Questions

Circle the letter of each correct answer.

1. Which of the following is/are part of the M1 definition of money?
   I. Currency
   II. Demand deposits
   III. Savings accounts and small time deposits
   IV. Eurodollars

   a. I only
   b. II only
   c. III only
   d. I and II only
   e. II, III, and IV only

2. If the reserve requirement is 20 percent, what is the value of the money multiplier?
   a. 2 b. 4 c. 5 d. .2 e. 10

3. The major disadvantage of commodity money is:
   a. It is heavy and difficult to carry.
   b. It loses most of its value because of inflation.
   c. Governments will print too much of it.
   d. It has a low opportunity cost to society.
   e. It has a high opportunity cost to society.

4. The greatest portion of M1 is composed of:
   a. Savings accounts.
   b. Coins and currency.
   c. Time deposits.
   d. Demand deposits.
   e. Money market accounts.

5. Which of the following statements about federal funds and the federal funds interest rate is/are true?
   I. It is the same thing as the discount interest rate.
   II. Federal funds are reserve balances of financial institutions held at the Federal Reserve Banks.
   III. Open market operations affect the fed funds rate.

   a. I only
   b. II only
   c. III only
   d. I and II only
   e. II and III only

6. Suppose the Federal Reserve sells $500,000 worth of government securities to securities dealers on the open market. Suppose that banks hold no excess reserves and that the reserve requirement on deposits is 20 percent. As a result, what will happen to the money supply?
   a. It will contract by $2,500,000.
   b. It will contract by $500,000.
   c. It will expand by $2,500,000.
   d. It will expand by $500,000.
   e. It will remain unchanged.

7. When is the money market in equilibrium?
   a. When velocity is constant.
   b. When the interest rate equates the quantity of money demanded with the quantity of money supplied.
   c. When the interest rate is equal to the price of bonds.
   d. When the present value is greater than the interest rate.
   e. When the present value is equal to the interest rate.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

8. A commercial bank holds $500,000 in deposit liabilities, reserves of $120,000 and a required reserve ratio of 20 percent. The maximum amount by which this single commercial bank and the amount by which the banking system can increase loans are, respectively:
   a. $20,000 and $100,000.
   b. $120,000 and $500,000.
   c. $5,000 and $25,000.
   d. $20,000 and $80,000.
   e. $30,000 and $150,000.

9. Which of the following is the tool used most often by the Federal Reserve to regulate the money supply?
   a. Changing the discount rate.
   b. Changing the margin requirements.
   c. Moral suasion.
   d. Open market operations.
   e. Changing the reserve requirement.

10. According to the Keynesians, to remove an inflationary gap, the Fed should seek to:
   a. Expand the money supply and raise interest rates.
   b. Expand the money supply and lower interest rates.
   c. Contract the money supply and lower interest rates.
   d. Contract the money supply and raise interest rates.
   e. Buy bonds and decrease the discount rate.

11. To remove a deflationary gap, the Fed could:
   a. Sell securities.
   b. Raise the discount rate.
   c. Raise the reserve requirement.
   d. Buy securities.
   e. Raise the federal funds rate.

12. When the Fed sells bonds, you can expect:
   a. Reserves to increase, the money supply to increase, and interest rates to fall.
   b. Reserves to increase, the money supply to increase, and interest rates to rise.
   c. Reserves to decrease, the money supply to decrease, and interest rates to fall.
   d. Reserves to decrease, the money supply to decrease, and interest rates to rise.
   e. Reserves to decrease, the money supply to increase, and interest rates to fall.

13. Which of the following actions by the Fed will result in an increase in bank reserves?
   a. Buying bonds on the open market.
   b. Selling bonds on the open market.
   c. Increasing the discount rate.
   d. Increasing reserve requirements.
   e. Increasing the federal funds rate.

14. Aggregate demand/aggregate supply analysis suggests that an expansionary monetary policy will result in:
   a. An increase in real national income without much inflation when on the Keynesian part of the aggregate supply curve.
   b. An increase in real national income with a lot of inflation when on the Keynesian part of the aggregate supply curve.
   c. A shift in the aggregate supply curve to the left.
   d. A shift in the aggregate demand curve to the left.
   e. An increase in national income and no inflation when on the classical part of the aggregate supply curve.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

15. Which of the following combinations of monetary policy actions would have the most expansionary effect on the economy?

	Discount rate	Open market operations	Reserve requirement
a.	Increase	Sell bonds	Decrease
b.	Decrease	Buy bonds	Decrease
c.	Decrease	Sell bonds	Decrease
d.	Increase	Sell bonds	Increase
e.	Decrease	Buy bonds	Increase

16. Which of the following combinations of monetary policy actions would cause the greatest decrease in aggregate demand?

	Discount rate	Open market operations	Reserve requirement
a.	Decrease	Buy bonds	Decrease
b.	Increase	Sell bonds	Decrease
c.	Decrease	Sell bonds	Decrease
d.	Increase	Buy bonds	Increase
e.	Increase	Sell bonds	Increase

17. What will happen if the Fed buys bonds and lowers the reserve requirement during a period of full employment?
    a. Real GDP will increase.
    b. Real GDP will decrease.
    c. The price level will increase.
    d. The price level will decrease.
    e. Both a and d will occur.

18. According to the monetarists' monetary rule, if real growth in the economy is three percent annually, which of the following should the money supply do?
    a. Decrease one percent each year.
    b. Decrease three percent each year.
    c. Increase one percent each year.
    d. Increase three percent each year.
    e. Not change from year to year.

19. Most monetarists contend that the historical record since the founding of the Federal Reserve System suggests that discretionary monetary policy has:
    a. Tended to destabilize the economy.
    b. Been very successful in combating recession and inflation.
    c. Tended to stabilize the economy.
    d. Had virtually no impact on the economy.
    e. Worked better to combat inflation than recession.

20. How do Keynesians view monetary policy?
    a. It is totally ineffective.
    b. It is most effective in fighting unemployment.
    c. It affects GDP through its effect on interest rates.
    d. The best rule for monetary policy is to increase the money supply three to five percent a year.
    e. It is more powerful than fiscal policy.

Sample Short Essay Questions

*1. The reserve requirement for the banking system is 20 percent. Currently Third National Bank has no excess reserves. Then Behroz deposits $100 in her checking account at Third National.
   a. Explain without using a mathematical formula why Behroz's deposit can lead to a greater than $100 increase in the money supply.
   b. Discuss two limitations of this process.

2. True, false, or uncertain, and why? "An increase in the money supply will cause an equal increase in the price level."

3. Describe the conditions under which an increase in the money supply will become inflationary. Under what conditions will an increase in the money supply *not* become inflationary?

4. Illustrate why the Federal Reserve can determine the size of the money supply or interest rates, but cannot do both things at once.

5. Describe the difference between how Keynesians view monetary policy and how monetarists view monetary policy.

6. Explain the dampening effects on the money-creating potential of the banking system brought about by the holding of excess reserves by commercial banks.

*Actual AP essay question from a past year.
Question 6 written by Ruth Leorah Mims, Lake Highlands High School, Dallas, TX; Beverly Mathis, William Howard Taft High School, San Antonio, TX; and Sharon Turner, El Dorado High School, Placentia, CA.

Sample Long Essay Questions

1. Assume that you are a member of the Federal Reserve's Board of Governors. You receive the following data on the economy:

	Year ago	Month ago	Now
Real GDP (billions of dollars)	3,600	3,540	3,540
Consumer Price Index	210	215	216
Unemployment rate	7%	10%	11%
Gross private investment (billions of dollars)	602	570	570

   a. What problem is the nation facing?
   b. Do you want to increase or decrease the money supply? Justify your position.
   c. Describe the monetary policy you recommend. What are your options? What exactly would you do? Be sure to discuss two tools the Fed could use to achieve the goals of your policy.
   d. Describe the effects of your monetary policy on:
      i) Interest rates.
      ii) Investment.
      iii) Output.
      iv) The price level.
      v) Employment.
   e. Illustrate the effects of your monetary policy using:
      i) An aggregate demand/aggregate supply graph.
      ii) A Keynesian aggregate expenditure graph.

2. Suppose the economy is experiencing an inflation rate of 12 percent and an unemployment rate of 6.5 percent. The Federal Reserve Board is determined to "break the back of inflation" by decreasing the supply of money and increasing interest rates. Outline an appropriate course of action the Fed could take to accomplish these two objectives, and explain in detail the effect this contractionary policy would have on:
   a) The banking system.
   b) Employment.
   c) Private investment.
   d) GDP.

   Illustrate these effects with graphs.

Question 2 written by Ruth Leorah Mims, Lake Highlands High School, Dallas, TX; Beverly Mathis, William Howard Taft High School, San Antonio, TX; and Sharon Turner, El Dorado High School, Placentia, CA.

Macroeconomics

Unit 5

Monetary and Fiscal Combinations: Economic Policy in the Real World

Key Ideas

- Macroeconomic policy involves combinations of fiscal and monetary policies.
- The interactions between monetary and fiscal policies can affect overall aggregate demand. For example, a tight monetary policy combined with an expansionary fiscal policy can cause "crowding out."
- "Crowding out" is the effect of a rise in interest rates caused by increased borrowing by the federal government. The higher interest rates "crowd out" business and consumer borrowing.
- A Phillips curve illustrates the inflation-unemployment tradeoff and how this tradeoff may differ in the short and long run.
- Both monetary and fiscal policies are primarily aggregate demand policies, but not all of the macroeconomic problems in the economy are aggregate demand problems.
- If factors other than excess aggregate demand are contributing to inflation, it is difficult for monetary and fiscal policies to deal with them.
- If factors other than insufficient aggregate demand are contributing to unemployment, it is difficult for monetary and fiscal policies to deal with them.
- Economic growth is concerned with increasing an economy's total productive capacity at full employment or its natural rate of output. This output is represented by a vertical long-run aggregate supply curve.
- Economic growth is usually measured by changes in real GDP or by changes in real GDP per capita.
- Economic growth can be shown graphically as a rightward shift of a nation's long-run aggregate supply curve or a rightward shift of its production possibilities curve.
- The rate of economic growth is affected by a variety of aggregate supply and demand factors.
- The classical model represents an idealized version of a private-enterprise economy in the long run. In terms of aggregate demand and supply, the classical model is characterized by a vertical aggregate supply schedule, which is a function of tastes, technology, society's resource base, and the distribution of economic resources, and an aggregate demand schedule that is a function of real money balances. Supply-side factors determine real output and employment. Aggregate demand and supply together determine the price level.
- The Keynesian model is based on the belief that fiscal policy works through aggregate demand. Government fights unemployment by increasing aggregate demand and fights inflation by decreasing aggregate demand. Monetary policy works through interest rates and investment and also affects aggregate demand.
- The monetarist model, which is closely related to the classical model, focuses on the importance of changes in the money supply on the economy. The monetarists' basic analytical device is MV = PQ. Monetarists favor a monetary rule calling for a constant rate of change (usually three to five percent) in the money supply that coincides with changes in real GDP.
- The rational expectations model, which is also closely related to the classical model, maintains that economic agents (consumers and businesses) are intelligent decision makers and can be expected to take the effects of government policy changes into account in deciding their behavior. Because agents anticipate changes in policies, these policies will have no effect on real GDP.
- Supply-side economics emphasizes factors that cause the aggregate supply curve to shift. Supply-side economists argue that inflation and stagflation are caused largely by decreases in aggregate supply—not by changes in aggregate demand. They recommend microeconomic solutions such as improved productivity and less government regulation.
- Different economic theories are only one reason why economists disagree; other reasons are disputes about time periods, different assumptions, and different values.

ACTIVITY 43

Monetary and Fiscal Policy

Both monetary and fiscal policy can be used to help fight the common economic problems of *inflation* and *recession*. As a class, discuss which policy in each of the pairs below would be more effective in achieving the desired goals. Be prepared to use the AD/AS model to illustrate the outcome of each decision.

Monetary Policy	Fight Inflation	Stop a Recession
1. a. Increase reserve requirements b. Decrease reserve requirements		
2. a. Buy government securities b. Sell government securities		
3. a. Lower the discount rate b. Raise the discount rate		

Fiscal Policy	Fight Inflation	Stop a Recession
4. a. Increase government spending b. Reduce government spending		
5. a. Raise taxes b. Lower taxes		

ACTIVITY 44

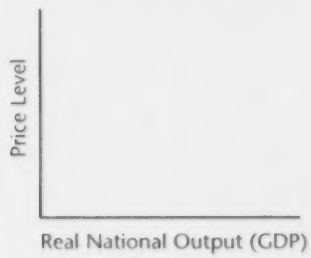
Graphing Monetary and Fiscal Policy Interactions

For each of the following monetary and fiscal policy combinations, draw aggregate demand and supply curves to illustrate the effects of the given policies. Circle the appropriate symbols (↑ for increase, ↓ for decrease, and **?** for uncertain) and explain the effect of the policies on:

a. Interest rates.
b. Investment.
c. Real GDP.
d. The price level.
e. Unemployment.

1. The unemployment rate is ten percent, and the CPI is increasing at a two percent rate. The federal government cuts taxes and increases its spending. The Fed buys bonds on the open market.

Effects of Policy A



a. Interest rates ↑ ↓ **?** Why?

b. Investment ↑ ↓ **?** Why?

c. Real GDP ↑ ↓ **?** Why?

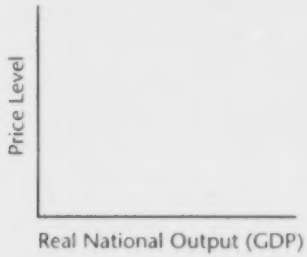
d. The price level ↑ ↓ **?** Why?

e. Unemployment ↑ ↓ **?** Why?

ACTIVITY 44 continued

2. The unemployment rate is six percent, and the CPI is increasing at a nine percent rate. The federal government raises taxes and cuts spending. The Fed raises the reserve requirement and sells bonds on the open market.

Effects of Policy B



a. Interest rates ↑ ↓ ? Why?

b. Investment ↑ ↓ ? Why?

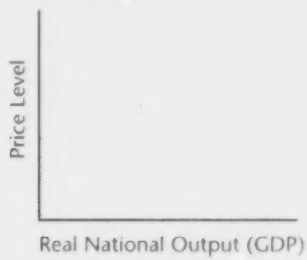
c. Real GDP ↑ ↓ ? Why?

d. The price level ↑ ↓ ? Why?

e. Unemployment ↑ ↓ ? Why?

3. The unemployment rate is six percent, and the CPI is increasing at a five percent rate. The federal government cuts taxes and maintains current spending. The Fed raises the discount rate and sells bonds on the open market.

Effects of Policy C



a. Interest rates ↑ ↓ ? Why?

b. Investment ↑ ↓ ? Why?

c. Real GDP ↑ ↓ ? Why?

d. The price level ↑ ↓ ? Why?

e. Unemployment ↑ ↓ ? Why?

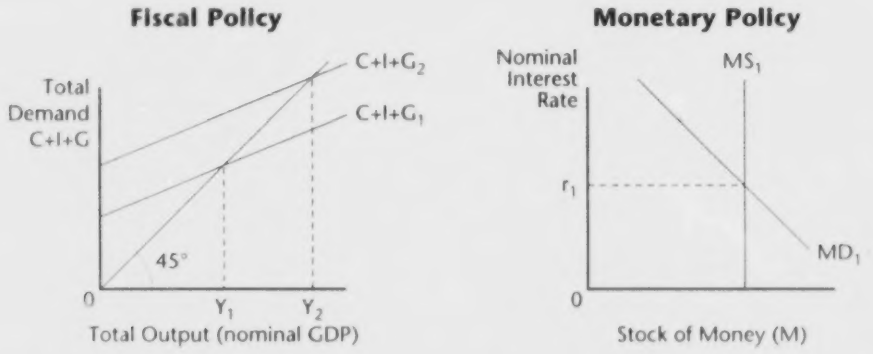
ACTIVITY 45

Crowding Out: A Graphical Representation

Monetary policy and fiscal policy do not exist in separate airtight compartments. Monetary policy and fiscal policy can reinforce or accommodate each other, or they can work at cross purposes.

For example, an expansionary fiscal policy will increase aggregate demand. The increase in AD should increase the demand for money. If the Fed does not increase the money supply, interest rates will rise. Because the government is borrowing money to finance its expansionary fiscal policy, consumers and businesses will be crowded out of the financial markets. This could lower consumer and investment spending and slow down the economic expansion. On the other hand, if the Fed increases the money supply, interest rates should not rise as much. Of course, increasing the money supply too much could cause inflation.

1.



If fiscal policy increases $C+I+G_1$ to $C+I+G_2$ in the *Fiscal Policy* diagram, and if monetary policy keeps the stock of money at MS_1 in the *Monetary Policy* diagram, add one new curve to each diagram to illustrate what many economists call "crowding out" and explain below what happens in each diagram.

a. In the *Monetary Policy* diagram, which curve did you add? What happens as a result of this new curve?

b. How does what you describe in the preceding question affect the *Fiscal Policy* diagram? Which curve did you add? What happens as a result of this new curve?

Adapted from Phillip Saunders, *Introduction to Macroeconomics: Student Workbook*, Fifteenth Edition, Bloomington, IN, 1993.
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ACTIVITY 45 continued

c. How could monetary policy prevent what you describe in the preceding question from happening? Add a new curve to the *Monetary Policy* diagram and explain how this would make it unnecessary to change the *Fiscal Policy* diagram. What curve did you add? What happens as a result of this new curve?

2. Indicate whether you agree (A), disagree (D), or are uncertain (?) about the truth of the following statements and explain your reasoning.

   a. _____ "Exhaustion of excess bank reserves inevitably puts a ceiling on every business boom because without money the boom cannot continue."

   b. _____ "A fiscal policy in which the U.S. Treasury Department increased its borrowing by selling a new issue of government bonds would be more expansionary if the new bonds were sold to the Federal Reserve than if they were sold to the general public."

3. If the independent Federal Reserve Open Market Committee wished to accommodate or reinforce a contractionary fiscal policy:

   a. Would it buy or sell bonds? _____

   b. What effect would this have on bond prices and interest rates?

   c. What effect would this have on bank reserves and the money supply?

   d. What effect would b and c have on aggregate demand?

ACTIVITY 45 continued

4. If the independent Federal Reserve Open Market Committee wished to accommodate or reinforce an expansionary fiscal policy:

   a. Would it buy or sell bonds? _____

   b. What effect would this have on bond prices and interest rates?

   c. What effect would this have on bank reserves and the money supply?

   d. What effect would b and c have on aggregate demand?

ACTIVITY 46

Economic Growth and the Determinants of Productive Capacity

Part A. Background Information

The limit of an economy's ability to produce real goods and services is set by the quantity and quality of its basic productive resources. At any given moment, an economy's total productive capacity may be fixed, but over time an economy can increase (or decrease) its capacity to produce real goods and services by increasing (or decreasing) the quantity and/or the quality of its productive resources. Thus, in its most fundamental sense, *economic growth* is concerned with increasing an economy's total productive capacity at full employment or its natural rate of output. In practice, however, economic growth is usually measured by changes in real GDP or, more meaningfully, in order to take account of population growth, real GDP *per capita*. This measuring practice sometimes makes it difficult to distinguish between short-run increases in real GDP that occur when the economy is recovering from a recession (and simply reducing unemployment and using existing capacity) and long-run increases in real GDP that occur from increasing productive capacity.

When the actual rate of real GDP is below its natural rate, the economy is not producing up to its estimated capacity, and the actual rate of unemployment is higher than the natural rate of unemployment. When the actual rate of real GDP is above its natural rate, the economy is temporarily exceeding its estimated capacity, and the actual rate of unemployment is lower than the natural rate of unemployment.

An economy's productive resources can be classified in several different ways. Some of our resources are physical or tangible things that we can see, count, weigh, or measure. Other things that are useful in the production process are intangible. They are more difficult to identify and measure but no less important than tangible resources. In summary, we can say that, at any given time, an economy's productive capacity is determined by the quantity and quality of its:

- **Human Resources**—The health, strength, education, and skills of its people, including their ability to organize economic activity, take risks, and get things done, sometimes given the specialized label *entrepreneurship*, from a French word meaning "to undertake."
- **Natural Resources**—The gifts of nature that are useful in producing goods and services.
- **Capital Goods**—The plant, equipment, and machinery needed to make other goods and services.
- **Technology**—The technical knowledge of how to combine other resources in a way that helps increase an economy's ability to produce goods and services.
- **"Environment for Enterprise"**—The basic social, economic, and political values and institutions supported by a society that either aid, or hinder, the production of goods and services.

Increasing productive capacity often means giving up current consumption in exchange for increasing future output and income. This is true for individuals (who can postpone entering the labor force so that they can obtain education, skills, and training that will make them more productive in the future); for business firms (that can use undistributed corporate profits to buy new machinery rather than pay out all of their after-tax profits as dividends to their stockholders); and for government (which can raise personal taxes to cut consumption and use the revenue to finance basic research and development projects or which might lower taxes to business firms that buy new plant and equipment that will increase the productivity of their labor force).

Parts of this activity adapted from Phillip Saunders, *Introduction to Macroeconomics: Student Workbook*, Fifteenth edition, Bloomington, IN, 1993, and William B. Walstad and Robert C. Bingham, *Study Guide to Accompany McConnell and Brue Economics*, Twelfth edition (New York: McGraw-Hill, 1993).

ACTIVITY 46 continued

Part B. Measuring Economic Growth

1. Suppose the real GDP and the population of an economy in seven different years were those shown in the table *Calculating Per Capita Real GDP.*

Calculating Per Capita Real GDP

Year	Population, in millions	Real GDP, in billions	Per capita real GDP
1	30	$9	$300
2	60	$24	_____
3	90	$45	_____
4	120	$66	_____
5	150	$90	_____
6	180	$99	_____
7	210	$105	_____

   a. How large would the real per capita GDP of the economy be in each of the other six years? Enter your figures in the table.

   b. What was the *amount* of growth in real GDP between year 1 and year 2? _____

   c. What was the *rate* of growth in real GDP between year 3 and year 4? _____

2. Given the hypothetical data in the table *Calculating Average Rates of Growth,* calculate the average annual rates of growth in real GDP and real per capita GDP over the period given. Be sure to adjust the rate of growth for the number of years in the period so you get average annual rates.

Calculating Average Rates of Growth

Year	Real GDP, in billions	Annual growth, in percent	Real GDP per capita	Annual growth, in percent
1970	$2,416	- - - -	$11,785	- - - -
1975	$2,695	_____	$12,593	_____
1980	$3,187	_____	$13,978	_____
1985	$3,618	_____	$15,139	_____
1988	$3,995	_____	$16,240	_____
1991	$4,545	_____	$17,110	_____

ACTIVITY 46 continued

Part C. Analyzing the Reasons for Economic Growth

Economic growth can be illustrated by a rightward move of the long-run aggregate supply curve or a shift outward of the production possibilities curve. Illustrate the effect of each of the following situations using AD and AS graphs. Remember that the policy may also affect short-run AS and AD. Then circle the appropriate symbols (↑ for increase, ↓ for decrease, and — for unchanged) to show the effects of the change on the price level and real GDP. Finally, explain why the policy increased or decreased economic growth.

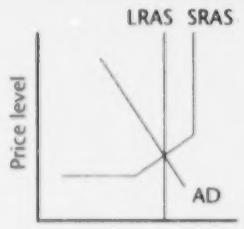
1. Because of improved education, the work force becomes more productive.

   Price level ↑ ↓ —

   Real GDP ↑ ↓ —

   Why?

Effect of Improved Education



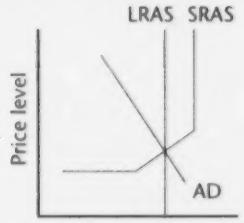
2. The Federal Reserve uses a tight-money policy to increase interest rates.

   Price level ↑ ↓ —

   Real GDP ↑ ↓ —

   Why?

Effect of a Tight-Money Policy



3. Briefly explain how the following policies will affect economic growth and why.

   a. Higher taxes on businesses

   b. Fewer government regulations

   c. Improvements in technology

   d. Lower interest rates

ACTIVITY 46 continued

e. Less savings by people who want to enjoy the good life

f. Higher productivity of labor due to improved management styles

ACTIVITY 47
The Expansion of the 1960s

Someone viewing the U.S. economic terrain in 1961 would have seen a relatively sluggish economy. Gross domestic product (GDP)* grew at an annual rate of 2.5 percent between 1953 and 1961. Potential GDP grew at an annual rate of 3.5 percent during the same period. This shortfall of actual GDP growth relative to potential GDP growth resulted in higher unemployment. Unemployment, which had been 3.0 percent in 1953, was 6.1 percent in 1961. Full-employment unemployment was estimated to be 4.0 percent during this period, and unemployment was more than 4.0 percent from 1954 to 1961. Although GDP growth was low and unemployment was high, inflation was low during this period. From 1953 to 1961, the Consumer Price Index (CPI) rose by only nine percentage points (from 80.1 to 89.6), which meant that inflation averaged a little over one percent a year. During this period the federal government's budget showed a deficit more often than not, particularly in recession years, and in 1961 the deficit was $4 billion.

John Kennedy was elected President of the United States in 1960. His administration established the following goals for the economy: (1) more rapid growth in actual GDP in order to reduce unemployment; (2) more rapid growth in potential GDP; and (3) continued low inflation. The public debate about whether these goals were appropriate and about what policies would be most appropriate to achieve these goals raised some interesting questions. Was achieving more rapid growth in GDP consistent with maintaining low inflation? If more rapid growth was desirable, what combination of monetary and fiscal policies would best achieve it, and to the extent that fiscal policy was used, should it be primarily in the form of tax cuts or expenditure increases? Some felt that monetary policy was not sufficiently potent to achieve the desired increase in growth, and an expansionary monetary policy would hurt our balance-of-payments deficit. Others said that an expansionary monetary policy was the best way to achieve an increase in growth of potential GDP, and we couldn't afford to pursue an expansionary fiscal policy when we had a budget deficit. A response to this last argument was that we had a deficit because we had slow growth so that faster growth would reduce the deficit, and balancing the budget was an old-fashioned idea. Concerning the debate about tax cuts versus expenditure increases, some felt that we needed the additional public expenditures, while others opposed the growth of public expenditures as a percentage of our GDP.

Although the policy debate started in 1961, a major policy action was not taken until 1964. Unemployment was lower in 1964 than it had been in 1961, but at 5.5 percent it was still relatively high. In 1964 personal income taxes were cut by 20 percent and corporate taxes by 8.0 percent. The economy did expand in response to these measures; unemployment fell to 4.4 percent in 1965 and 3.7 percent in 1966, and, as the economy expanded, the Federal Reserve acted to keep the interest rate from rising.

Answer the following questions on a separate sheet of paper.

1. Explain the distinction between growth in actual GDP and growth in potential GDP. If actual GDP grows more slowly than potential GDP, why does unemployment rise?

2. Were the goals outlined by the Kennedy administration appropriate ones for an economy to achieve? Explain.

3. Was the concern that more rapid growth in GDP would cause a problem with inflation justified? Use both an aggregate demand and aggregate supply diagram and a Phillips curve to illustrate your answer.

* GDP is used for consistency although GNP was the measurement used in the 1960s.

Activity developed by Robert Barry, College of William and Mary, Williamsburg, VA.

ACTIVITY 47 continued

4. Why would the tax cut enacted in 1964 have caused the interest rate to rise without Federal Reserve action? What would the Federal Reserve have had to do to keep the interest rate from rising? Explain and show this with an appropriate graph.

5. Use a total expenditure/45° diagram and an AD/AS diagram to show the effect of the tax cut with and without the Fed's actions to keep the interest rate from rising.

6. What would be the effect of the corporate profits tax cut on investment? Why? What would be the effect of the Fed's interest rate policy on investment? Why?

7. Why would someone argue that the government's budget was in deficit because the economy was operating below its potential? Is there a conflict between a balanced-budget goal and the goal of achieving full employment with fiscal policy? Explain.

ACTIVITY 48
The Inflation of the 1970s

By 1966, the expansionary policies initiated in 1964 had taken the economy below 4 percent unemployment, and unemployment remained below 4 percent until 1970. Using unemployment to gauge when the economy is operating at potential is a bit tricky. In the early 1960s, 4 percent unemployment was probably full-employment unemployment. By the end of the 1960s, full-employment unemployment was probably in the range of 4.5–5 percent, and, by the mid 1970s, it was probably close to 5.5 percent. Inflation, which had averaged 1.3 percent from 1961 through 1965, jumped to 3.4 percent in 1966 and continued to rise until it was 6.1 percent in 1969.

In 1969, taxes were raised and the Federal Reserve tightened monetary policy. Unemployment rose to a peak of 5.8 percent in 1971. The lowest rate of unemployment we were able to achieve in the 1970s was 4.8 percent in 1973. Otherwise, the unemployment rate was never below 5.5 percent and was as high as 8.3 percent in 1975. From 1970 to 1982, the average rate of unemployment was 6.3 percent, yet during the same period inflation averaged 8 percent. The recession that was engineered in reaction to the 6 percent rate of inflation in 1969 brought inflation down to 3.5 percent in 1971, but inflation didn't stay down. World food prices rose sharply in 1973 as a result of major crop failures. OPEC raised the world price of oil sharply in 1974, and problems in Iran caused oil prices to increase significantly again in 1979.

Answer the following questions on a separate sheet of paper.

1. What would cause the amount of unemployment at full employment to change?

2. Use an aggregate demand and supply (AD/AS) diagram to show the following:
   a. The cause of inflation in the late 1960s.
   b. The effect on inflation of the food and oil price increases in 1973, 1974, and 1979.

3. Use an AD/AS diagram to show the appropriate policy response to the oil price increases in the following instances:
   a. If unemployment were the main concern of policymakers.
   b. If inflation were the main concern of policymakers.
   c. If inflation and unemployment were of equal concern.

4. Show the rising inflation of the late 1960s on a Phillips curve. Then show the effect of the food and oil price increases on the Phillips curve. How would the continuing high inflation of the 1970s have affected the Phillips curve? Explain.

5. a. It has been argued that the main cause of inflation during this period (and of high inflation at any time) was a high growth rate of the money supply. It is true that from 1960 to 1966 money growth averaged 3 percent and averaged 6.3 percent from 1967 to 1982. Use a Phillips curve to show what would have happened to inflation and unemployment if money growth had been reduced at any time during the 1970s. Given that unemployment was averaging more than 6 percent, does that suggest any idea about why money growth wasn't reduced?

Activity developed by Robert Barry, College of William and Mary, Williamsburg, VA.

ACTIVITY 48 continued

b. As the inflation continued into the 1970s, it was argued that for a reduction in money growth to be fully effective in bringing down inflation, the Federal Reserve would need to convince people that it was serious about reducing money growth and would stick with the lower money growth until inflation was brought down. Why would it be important for the Fed to establish this credibility?

ACTIVITY 49

Supply-Side Economics, Budget Deficits, and Tax Changes

When Ronald Reagan took office in January 1981, inflation was high (12.4 percent in 1980), and unemployment was high (7 percent in 1980). President Reagan argued that we needed a new approach to our economic problems. Because the new approach called for us to change our focus from the effect tax cuts had on demand to the effect tax cuts had on supply, the new approach was labeled *supply-side economics*. The argument of supply-side economics was that if the marginal tax rate on income from wages, interest, and profits were reduced, it would stimulate work efforts, savings, and investment so that we would have both an increase in employment and a decrease in inflation. Taxes were cut in 1982, but the Federal Reserve simultaneously pursued a very contractionary monetary policy. The Fed's contractionary monetary policy was stronger than the expansionary fiscal policy, so the economy experienced a severe recession. Unemployment was 9.5 percent in both 1982 and 1983, and it was not until 1985 that unemployment returned to its 1980 level of 7 percent. With some help from falling oil prices, this severe and prolonged recession did bring down inflation; measured by the CPI, inflation was less than percent in 1986. When Reagan left office in 1988, the unemployment rate was 5.5 percent, and the rate of inflation was 4.4 percent. In 1988, real GDP increased by 3.9 percent, rising for the sixth straight year.

With inflation at a more reasonable level, the federal budget deficit became the focus of economic policy. In 1981, the budget deficit was $74 billion but rose to over $221 billion by 1986. Some taxes were raised as part of the tax reform package in 1986, and by 1989 the budget deficit was down to $152 billion. By 1990, however, the budget deficit had grown again to $221 billion. This prompted President George Bush and the Democratic Congress to raise taxes in 1990.

After eight consecutive years of growth, the economy hit the skids. In 1992, real GDP decreased 1.2 percent; the unemployment rate increased from 5.5 percent in 1990 to 7.4 percent; and the budget deficit rose to $290 billion. Only inflation stayed low, at about 3 percent. Low inflation was not good enough. The voters replaced Bush with Bill Clinton.

President Clinton and the Congress increased taxes and reduced the growth of federal expenditures. By 1994, the budget deficit stood at $234 billion; unemployment had fallen to 6.1 percent; and real GDP was rising at about a 4 percent annual rate. Nevertheless, the voters elected a Republican majority in the House of Representatives and the Senate in 1994. People wondered, in 1996, would Clinton join Bush as a one-term President? Would the state of the economy or other issues decide the election of 1996?

Answer these questions on a separate sheet of paper.

1. Use an AD/AS diagram to explain the supply-side argument that tax cuts would increase employment and reduce inflation.

2. Explain how an expansionary fiscal policy combined with a contractionary monetary policy affects the interest rate. Does this help to explain the argument that the current budget deficit hurts investment and growth? Explain.

3. a. If we consistently use fiscal policy to get the economy out of a recession and monetary policy to cool the economy down when inflation becomes a problem, what happens to the interest rate over time? to the budget deficit? to growth in potential output? Explain.

ACTIVITY 49 continued

b. Does this make the discipline of a balanced budget more meaningful? Explain.

4. How would a Keynesian explain why the tax increase in 1990 would result in lower real GDP, higher unemployment, and a lower rate of inflation? Use an AD/AS diagram to illustrate this.

5. Harvard economist Robert Barro believes that President Bush was responsible for the poor economic performance in the latter half of his administration. According to Barro*:

> Free-market policies worked well in the United States in the 1980s and in other places at various times, so we apparently have decided to try something else.... Bush raised taxes and spending, increased the minimum wage rate and unemployment-insurance benefits, intensified the enforcement of regulations, and enacted an array of new intrusions in the form of the Americans-with-Disabilities Act, the Clean Air Act, and the Civil Rights Act.

   a. Is this a supply-side or a demand-side argument? Explain your answer.

   b. Illustrate this with an AD/AS diagram.

   c. Barro writes that inflation didn't increase because of "a monetary policy that remained committed to low inflation."* What would this monetary policy have to be in order to keep inflation low? Would it be a tight money or easy money policy?

6. a. Did President Clinton's policies work? Why or why not?

   b. At the time you are reading this, what are the growth rate in real GDP, the unemployment rate, and the inflation rate?

*Robert J. Barro, "Issue: Clinton's First-Year Economic Report Card," *The Senior Economist*, Vol. 9, No. 4, Apr. 1994, p. 8.

ACTIVITY 50

Analyzing Short-Run and Long-Run Effects of Monetary and Fiscal Policies

You have 25 minutes to answer the following questions. It is suggested that you take a few minutes to plan and outline your answer. Be sure to justify the assumptions on which you based your answer. It is not enough to list the outcomes of proposed policies or actions. You should emphasize the process by which these outcomes are achieved. Also, be sure to include diagrams in explaining your answer. All diagrams should be clearly labeled.

1. Suppose the following statements describe the current state of the U.S. economy.
   a. The annual growth rate of real Gross Domestic Product (GDP) is 5 percent.
   b. The unemployment rate is 6 percent.
   c. The Consumer Price Index (CPI) is rising at 9.5 percent annually.

2. Indicate which macroeconomic goals of the economy are being met and which are not.

3. Suppose the government pursues a new policy package that includes substantial tax cuts, an increase in government spending, and a decrease in the growth of the money supply.
   a. Assess whether these policies will help the economy meet the goals you outlined.
   b. Explain in detail how and why each of these policies, alone and in combination, causes changes in:
      (1) Output.
      (2) The price level.
      (3) Employment.
      (4) Economic growth.

Adapted from Advanced Placement Course Description. *Economics: Microeconomics, Macroeconomics* (New York: College Board, 1988).

ACTIVITY 51
Why Economists Disagree

Part A. Understanding Reasons That Economists Disagree

It is not unusual to find "experts" disagreeing with each other. Experts disagree over all sorts of matters—nuclear power, environmental protection, and who will win the Super Bowl. Why do experts disagree? How can the average person make sense out of the differing viewpoints and recommendations? Here are several important factors that often lead economists to different conclusions.

1. Different Time Periods

One economist might state that the present policy of the government will lead to inflation. Another might disagree. Both could be right if they are talking about the effects of the policy on inflation at different times, for example, six months from now as compared to two years from now.

2. Different Assumptions

Because an economy is a complex system, it is often hard to predict the effects of a particular policy or event. Therefore, in order to be able to make predictions, economists usually must hold certain assumptions (or beliefs). But economists often differ in their assumptions. For example, one economist might assume (or believe) that the federal budget deficit will become larger next year; another might not. These different assumptions could be the result of how much economic growth—and tax revenues and government spending—they assume (or believe) will take place.

3. Different Economic Theories

Economists agree on many matters, such as, "If the price of beef goes up and nothing else changes, people will buy less beef." That is a prediction with which nearly all economists would agree because it rests on the generally accepted law of demand. However, economists have yet to settle a number of important questions, especially those concerning macroeconomics. Macroeconomics deals with the behavior of the economy as a whole or large subdivisions of it, and how to influence that behavior. Economists have several different theories or explanations about what influences macroeconomic behavior. Until these theories are reconciled or until one of them is widely agreed on as best, economists will disagree on macroeconomic questions because they are using different theories. The same applies to certain microeconomic questions. Microeconomics concerns specific units or parts of an economic system, such as firms, industries, households, and the relations among these units.

4. Different Values

Economics is concerned with explaining what is happening in the economy. It is also concerned with predictions. The economist should be able to say to the President or to Congress, "If you follow Policy One, then X, Y, and Z will happen. If you follow Policy Two, then Q, R, and S will happen. Pick the policy giving the results you like better." In practice, such statements by economists often contain more than analysis and the prediction of results. Their statements often recommend policies they like because the results agree with their own values, i.e., the results they prefer. For example, some economists will recommend Policy One because X, Y, and Z will happen and they favor achieving X, Y, and Z. Other economists will recommend Policy Two because they favor achieving results Q, R, and S. Such disagreements are basically about which outcomes are preferred by the economists. The economic policies recommended are determined by the preferred outcomes.

From *Master Curriculum Guide in Economics: Teaching Strategies for High School Economics Courses* (New York: National Council on Economic Education, 1985), p.158.

ACTIVITY 51 continued

Part B. Listening in on a Discussion of Economists

Four distinguished professors of economics are discussing current economic policy at a luncheon press conference attended by leading reporters of business news. Let's listen in.

Professor T.X. Cut: Let's separate issues. On the fiscal policy side, this administration's budget proposal is not extravagant or inflationary. The tax cuts are partly balanced by spending cuts. With so many people still unemployed and so many factories still closed, a policy of this kind cannot rekindle inflation. The tax cuts will stimulate consumer spending, work effort, and business investment in an economy just emerging from a recession. We must let people keep the fruits of their labor and savings as incentives to produce and invest more. The spending cuts will prevent government from continuing to receive ever increasing pieces of the nation's economic pie.

Professor U.R. Nutts: Excuse me, Dr. Cut. But that position makes little sense. First of all, let me say that this administration's tax cuts and spending cuts have been and are grossly unfair. The tax cuts have favored the rich, and the spending cuts have reduced programs that help maintain economic security for Americans with low incomes. The present deficit—and those projected for the future—are so large that they threaten our recovery from the recession. Here's why. All deficits must be paid for by government borrowing, and because the government is borrowing so much money, there is less available for consumers and businesses. With government borrowing now threatening to increase, interest rates will rise, and that will reduce spending for houses and cars—and in fact, spending on anything bought with a loan—as well as business investment that must be financed by borrowing. In other words, some important private borrowing will be "crowded out." Sometime next year, the recovery will therefore weaken, and we'll move back into recession. Taxes should be raised, especially on the wealthy, and at least some government programs that help low-income people should be restored to their original funding levels.

Professor E.Z. Money: Let me just comment, U.R., on your point about federal spending and borrowing "crowding out" private consumer spending and business investment. This is where monetary policy comes in. The Federal Reserve must continue to allow relatively free expansion of money and credit. If the Fed makes more money available, there will be less pressure for interest rates to rise. We'll be able to sustain the recovery in housing, autos, and other sectors. And businesses will be able to get loans for investments at affordable interest rates. Continuing our economic growth by sustaining this recovery is the most important task we have before us. Increasing taxes now would only reduce total spending, and thus threaten the recovery.

Professor Fred Critic: Excuse me, Dr. Money. You forget that the expansion of the money supply we're currently witnessing is part of a long history of bungling by the monetary policymakers. Our most recent recession was brought on by the Fed's jamming on the monetary brakes by an abrupt reduction in the increase of the money supply in order to bring inflation under control. They overdid it, as they always do, and produced a recession. Now, they're overdoing it in the other direction, stepping on the monetary accelerator and increasing the money supply too rapidly. That will stimulate the economy all right, but in a year or two those actions will rekindle inflation. The Fed will then again jam on the monetary brakes and produce yet another recession. Everyone knows this. Interest rates right now are higher than they should be because everyone expects more inflation later. Only moderate growth in the money supply can bring interest rates down in the long run. The only way to get back on a long-term, stable economic growth path is to reduce money growth to a steady, predictable, noninflationary level.

Ladies and gentlemen, that's all the time we have. Let's give our distinguished panel a round of applause.

ACTIVITY 51 continued

Economists disagree for the following reasons:

1. Because they use different time periods.
2. Because they make different assumptions.
3. Because they have different theories about how the economy works.
4. Because they have different values and ideas about which economic goals are most important.

Now analyze each professor's comments in Part B, using the following format:

Name of professor: _____

Major point: _____

_____

Time period: _____

Assumptions: _____

_____

Theoretical Support: _____

_____

_____

_____

Values: _____

_____

_____

_____

Name of professor: _____

Major point: _____

_____

Time period: _____

Assumptions: _____

_____

Theoretical Support: _____

_____

_____

_____

Values: _____

_____

_____

_____

ACTIVITY 51 continued

Name of professor: _____

Major point: _____

_____

Time period: _____

Assumptions: _____

_____

Theoretical Support: _____

_____

_____

_____

Values: _____

_____

_____

_____

Name of professor: _____

Major point: _____

_____

Time period: _____

Assumptions: _____

_____

Theoretical Support: _____

_____

_____

_____

Values: _____

_____

_____

_____

ACTIVITY 52
Sorting Out Macroeconomic Theories

The following ideas relate to three economic theories. Your job is to match the idea with the theory. Some ideas may fit more than one theory. Sort through the ideas and classify them under:

Keynesian Theory

Monetarist Theory

Rational Expectations Theory

Enter the ideas in the charts on the following pages.

- Aggregate supply is more vertical.
- Aggregate supply is more horizontal.
- Fiscal policy works better than monetary policy.
- Wages and prices are flexible.
- Effects of monetary policy influence aggregate demand more than effects of fiscal policy.
- GDP = C + I + G is a key to understanding this theory.
- Savings and consumption depend more on income than on interest rates.
- Active monetary and fiscal policies are generally ineffective in stabilizing the economy.
- It is important that an economic policy be clear and consistent.
- Fiscal and monetary policies have some short-term effects but have little influence in the long run.
- Because of imperfect competition, markets do not always adjust back to full-employment equilibrium.
- MV = PQ is the key to understanding this theory.
- Increase the money supply three to five percent a year to coincide with changes in real GDP.
- Most markets are highly competitive.
- Expectations are forward-looking.
- Government can and should play a positive role in stabilizing the economy.
- Government fiscal and monetary policies usually cause more economic instability than stability.
- The aggregate supply curve is always vertical.
- Government that governs least governs best.
- Inflation is caused by government creating too much money and by nothing else.
- Monetary policy works through interest rates.
- The velocity of money is unstable.
- People's expectations regarding monetary and fiscal policies often make these policies ineffective.
- The Fed should set interest rate targets.
- The Fed should set money supply targets.

Activity developed by John Morton.

ACTIVITY 52 continued

Keynesian Theory

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

Monetarist Theory

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____

ACTIVITY 52 continued

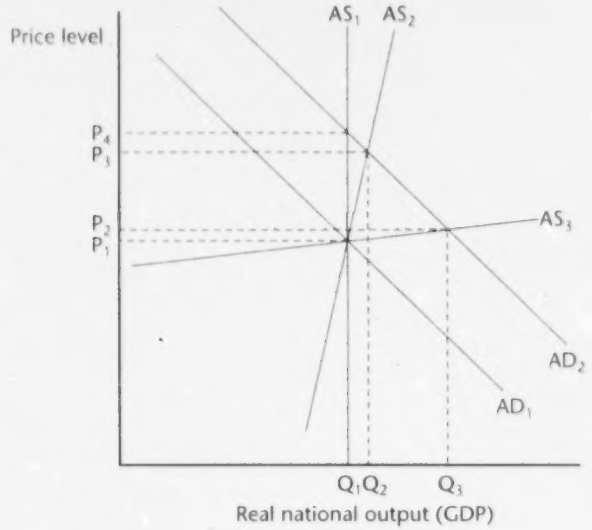
Rational Expectations Theory

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____

ACTIVITY 53
Graphing Macroeconomic Theories

Study the diagram and answer the questions that follow by crossing out the incorrect words in parentheses or filling in the correct answers.

Graphing Macroeconomic Theories



1. AS_1 is the *(Keynesian/monetarist/rational expectations)* supply curve. AS_2 is the _____ supply curve, and AS_3 is the _____ supply curve.

2. Regardless of which is the economy's supply curve, if the aggregate demand curve is AD_1, the equilibrium real national output is _____, and the equilibrium price level is _____.

3. Should aggregate demand increase from AD_1 to AD_2 in the:

   a. Monetarist model, the equilibrium real national output would *(increase to/decrease to/remain constant at)* _____, and the equilibrium price level would *(increase to/decrease to/remain constant at)* _____.

   b. Keynesian model, the equilibrium real national output would *(increase to/decrease to/remain constant at)* _____, and the equilibrium price level would *(increase to/decrease to/remain constant at)* _____.

   c. Rational expectations model, the equilibrium real national output would *(increase to/decrease to/remain constant at)* _____, and the equilibrium price level would *(increase to/decrease to/remain constant at)* _____.

From William B. Walstad and Robert C. Bingham, *Study Guide to Accompany McConnell and Brue Economics*, Twelfth edition (New York: McGraw-Hill, 1993), p. 181.

ACTIVITY 54
What Should the President Do?

The date is January 1982. The place is the White House. Assembled around a large table are the best economic minds in the nation. Called only days earlier, the economists had canceled all other obligations at the President's request in order to offer their advice.

Indeed, wise counsel was what the President sought because the nation was in the midst of a recession.

1. The GDP was currently falling at a 5.2 percent annual rate. The year 1981 had been one of the worst years ever for the auto industry; factories had operated at 74.9 percent of capacity during the month of December; and inventory levels of unsold goods were building.
2. Unemployment was at 8.4 percent in December.
3. Inflation was still close to 9 percent, although it had dropped during the past two years.
4. Interest rates were high with the prime close to 16 percent.
5. The budget deficit was steadily rising in spite of presidential promises of a balanced budget, and 10 percent of the budget was necessary to cover interest charges on the federal debt.
6. The Federal Reserve was pursuing a tight money policy.
7. The President and the Congress had agreed to cut taxes by 25 percent over a three-year period.

At the moment, the President wants to know what to do next. What should the major thrust of his policy be? Seated around this table are monetarists, Keynesians, supply-siders, and those who support the rational expectations point of view. The greatest economic minds of each persuasion are gathered together.... And you are there.

1. Write an outline of a five-minute speech (two-three pages) recommending a policy that concentrates on employment, the inflation rate, and the rate of economic growth.

2. In this speech, be sure to indicate whether your policies are based on the classical, Keynesian, monetarist, supply-side, or rational expectations model. You may be flexible and combine parts of each model.

3. In your speech, illustrate the effect of your policies, using aggregate supply and demand graphs. You will use this neat diagram to show your audience.

4. In your speech, be sure to explain fully the effects of your policy on employment, the inflation rate, interest rates, and the rate of economic growth.
Good luck!

Activity developed by Elaine Schwartz, Kent Place School, Summit, NJ.

Sample Multiple-Choice Questions

Circle the letter of each correct answer.

1. Which of the following monetary and fiscal policy combinations would cause the greatest decrease in aggregate demand?

	Discount rate	Government spending	Open market operations
a.	Decrease	Increase	Buy bonds
b.	Decrease	Decrease	Buy bonds
c.	Increase	Decrease	Sell bonds
d.	Decrease	Increase	Sell bonds
e.	Increase	Decrease	Buy bonds

2. Which of the following monetary and fiscal policy combinations would cause the greatest increase in aggregate demand?

	Reserve requirement	Tax rate	Government spending
a.	Decrease	Decrease	Increase
b.	Increase	Decrease	Increase
c.	Increase	Increase	Decrease
d.	Increase	Increase	Increase
e.	Decrease	Decrease	Decrease

3. Assume that the economy has low unemployment and a high rate of inflation. Which set of monetary and fiscal policies would be consistent and designed to lower the rate of inflation?

	Taxes	Government spending	Open market operations
a.	Increase	Increase	Buy bonds
b.	Increase	Decrease	Buy bonds
c.	Increase	Increase	Sell bonds
d.	Decrease	Decrease	Buy bonds
e.	Increase	Decrease	Sell bonds

4. To counter the crowding-out effect on interest rates caused by deficit spending by the government, the Fed has to:
   a. Decrease tax rates.
   b. Buy bonds through open market operations.
   c. Increase the discount rate.
   d. Increase the reserve requirement.
   e. Increase tax rates.

5. Assume that GDP is in equilibrium at its full-employment level. The federal government decides to increase its expenditures by $15 billion. Fearing inflation, it wants to increase taxes so that the net change in the equilibrium level of GDP is zero. By how much should taxes be increased?
   a. Zero.
   b. Less than $15 billion, but not zero.
   c. $15 billion.
   d. More than $15 billion.
   e. Tax revenues should be reduced by more than $20 billion.

6. Which of the following would best portray economic growth?
   a. A rightward shift of the long-run aggregate supply curve.
   b. A leftward shift of the short-run aggregate supply curve.
   c. A leftward shift of the production possibilities curve.
   d. A rightward shift of the aggregate demand curve.
   e. A leftward shift of the aggregate demand curve.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

7. Which of the following would be likely to increase economic growth?
   I. An increase in productivity
   II. An increase in taxes
   III. An increase in consumer spending
   IV. A decrease in interest rates

   a. I only
   b. III only
   c. I and II only
   d. I and IV only
   e. II and IV only

8. Which of the following statements represent(s) the monetarist viewpoint?
   I. The rate of growth of the money supply should increase about three to five percent a year.
   II. Fiscal policy is more effective than monetary policy.
   III. Monetary policy indirectly affects the economy through interest rates and investment.

   a. I only
   b. II only
   c. III only
   d. I and III only
   e. II and III only

9. An expansionary fiscal policy will increase the interest rate unless which of the following occurs?
   a. Taxes are cut instead of government expenditures increased.
   b. The money supply is increased.
   c. Wage-and-price controls are imposed.
   d. The exchange rate is fixed.
   e. The Fed sells government bonds.

10. Why will an expansionary monetary policy promote long-run growth?
    a. It increases investment.
    b. It increases consumption.
    c. It decreases net exports.
    d. It leaves government expenditures unchanged.
    e. It increases government expenditures.

11. In the Keynesian conception of the AD/AS model:
    a. An increase in AD can expand real output and employment without causing much inflation.
    b. An increase in AD can expand real output and employment only by causing a great deal of inflation.
    c. A decrease in AD can reduce inflation substantially without causing much unemployment.
    d. Changes in AD and changes in the price level are inversely related.
    e. The only effective fiscal policy is to increase aggregate supply.

12. What does the theory of rational expectations imply?
    a. Unemployment and the rate of inflation are directly related.
    b. An increase in the money supply will have no effect on prices.
    c. Attempts to decrease unemployment below the natural rate lead to depression.
    d. Attempts to decrease unemployment through government policy will be thwarted by people's reactions.
    e. Government policies work only if the money supply increases by ten percent.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

13. Which of the following combinations correctly describes the shape of the aggregate supply curve as seen by Keynesians, monetarists, and rational expectations theorists?

	Keynesians	Monetarists	Rational expectations
a.	Steep	Flat	Flat
b.	Flat	Steep	Steep
c.	Flat	Steep	Flat
d.	Steep	Steep	Steep
e.	Flat	Flat	Flat

14. The statement that "the cost of reducing the rate of inflation is that people must lose their jobs" indicates that the speaker believes in a relationship that is usually depicted by which of the following?
    a. The Phillips curve.
    b. The "liquidity trap."
    c. The production function.
    d. The Quantity Theory of Money.
    e. The multiplier.

15. The so-called Phillips curve is usually plotted with the unemployment rate on the horizontal axis and the percentage increase in prices on the vertical axis. According to those who believe in rational expectations and the natural rate of unemployment hypotheses, the *long-run* Phillips curve would appear as which of the following?
    a. A vertical line.
    b. A horizontal line.
    c. A line that slopes up from left to right.
    d. A line that slopes down from left to right.
    e. A U-shaped line.

16. What is the monetary rule as defined by monetarists?
    a. Monetary policy does not have an impact upon the economy until six to nine months after the money supply is changed.
    b. An expansionary fiscal policy should always be accompanied by an easy money policy.
    c. The annual rate of increase in the money supply should be equal to the long-term increase in the price level.
    d. The annual rate of increase in the money supply should be equal to the potential annual growth rate of real GDP.
    e. A contractionary fiscal policy must always be accompanied by an expansionary monetary policy.

17. If the government acts to stimulate GDP by raising government spending without a tax increase and if at the same time there is no change in monetary policy:
    a. Income would not go up at all because the money isn't available for increased spending.
    b. The rise in income might be greater than the multiplier would predict because higher interest rates will stimulate investment.
    c. The rise in income might be smaller than the multiplier would predict because demand for money will go up and interest rates will rise.
    d. Income will go up by exactly the amount predicted by the multiplier analysis since fiscal policy and monetary policy are separate policies and have no relationship to each other.
    e. Income will not go up at all unless taxes are cut.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

18. According to Keynesians, increasing government expenditures and income taxes by the same amount will:
    a. Increase aggregate demand.
    b. Decrease aggregate demand.
    c. Keep aggregate demand the same.
    d. Increase the money supply.
    e. Decrease the money supply.

19. If Congress and the Federal Reserve both wished to encourage growth of productive capacity in an economy already very close to full employment, it would be most appropriate to:
    a. Raise interest rates by buying securities on the open market.
    b. Use a tight money policy to decrease government spending.
    c. Reduce taxes on consumption, increase income taxes, and increase government transfer payments.
    d. Reduce interest rates by open market operations and raise taxes on consumption.
    e. Increase capital gains taxes and decrease the money supply.

20. "Unit sales of durable goods last month were unprecedented. Recent price rises have lifted indexes toward the highest level of the century. Average wholesale price increases have been in excess of one percent a month during the past year. Unit wage costs, as a result of soaring wage rates without equal gains in productivity, are five percent higher for durable goods now than in the third quarter of last year and four percent higher for nondurable goods. Unemployment is not a significant problem at this time." Which of the following monetary and fiscal policy combinations would be consistent and designed to correct this problem?

	Tax rate	Government spending	Discount rate
a.	Increase	Decrease	Decrease
b.	Decrease	Increase	Decrease
c.	Increase	Increase	Increase
d.	Decrease	Decrease	Decrease
e.	Increase	Decrease	Increase

Sample Short Essay Questions

1. Using monetary and fiscal policies, outline an expansionary policy that would encourage long-run growth.

2. Republicans want to reduce the deficit by cutting government spending while Democrats want to reduce the size of the deficit by increasing taxes. Compare these two programs using aggregate supply and demand analysis. Illustrate the effects of each program with AD/AS graphs.

3. Why is there a conflict between the Fed's attempts to control both the money supply and the interest rate? What is the implication of the Fed's attempt to control the money supply? Why do monetarists advocate that the Fed concentrate only on controlling the money supply?

4. What is the tradeoff between unemployment and inflation in the short run? What accounts for it? Why does this tradeoff pose a dilemma for policymakers? What tradeoff exists between inflation and unemployment in the long run?

5. One of the complaints about a growing national debt is the "crowding out" effect. Explain the meaning of this term. Identify two sectors of the economy that are involved in this crowding out. Explain the activities of these two sectors and show how they interact to create a crowding out effect. Use a diagram to illustrate your answer.

6. Why is using fiscal policy to fight recession and monetary policy to fight inflation bad for long-run economic growth?

*7. Using the aggregate supply and aggregate demand model, explain how the use of monetary policy to promote long-run economic growth will affect each of the following.

   a. Short-term interest rates.

   b. The composition (mix) of aggregate expenditures.

   c. Potential Gross Domestic Product.

8. Why do rational expectations theorists believe that monetary and fiscal policies will be ineffective?

*Actual AP essay question from a past year.

Sample Long Essay Questions

*1. Suppose that the following statements describe the current state of an economy.

- The unemployment rate is five percent.
- Inflation is at an annual rate of ten percent.
- The prime interest rate is 11.5 percent.
- The annual growth rate of real Gross Domestic Product is five percent.

a. Identify the major problem(s) the economy faces.

b. Describe two fiscal policy actions that could be used to alleviate the problem(s). Using the aggregate supply and aggregate demand model, explain how the actions you identified will affect each of the following. Illustrate with a graph.

i. Output and employment

ii. The price level.

iii. Nominal interest rates.

c. Instead of using fiscal policy to solve the country's problem(s), use only monetary policy. Describe two monetary policy actions that could be used to alleviate the problem(s). Using the aggregate supply and aggregate demand model, explain how the actions you identified would affect each of the following. Illustrate with a graph.

i. Nominal interest rates.

ii. Output and employment.

iii. The price level.

*2. Suppose that the following conditions describe the current state of the U.S. economy.

- The unemployment rate is five percent.
- Inflation is two percent.
- Real Gross Domestic Product is growing at the rate of three percent.

a. First, assume that the federal government increases its spending and increases taxes so as to maintain a balanced budget. Using aggregate supply and demand analysis, explain the short-run effects of these policies on each of the following.

i. Output and employment.

ii. The price level.

iii. Interest rates.

*Actual AP essay question from a past year

SAMPLE LONG ESSAY QUESTIONS continued

b. Now assume *instead* that the Federal Reserve buys bonds on the open market. Analyze the impact of this action on each of the following.

   i. Interest rates.

   ii. Output and employment.

   iii. The price level.

c. Using a graph, analyze the combined effect of the two policy actions described above on each of the following.

   i. Output and employment.

   ii. The price level.

   iii. Interest rates.

3. Contrast the Keynesian and monetarist macroeconomic models as to the fiscal and monetary policies each of these models would employ. Explain and demonstrate with appropriate graphs for the following conditions.

   a. Cure inflation.

   b. Cure recession.

   c. Cure stagflation.

Macroeconomics

Unit 6

The United States in a Global Economy

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Key Ideas

- People and nations trade in order to improve their standard of living.
- Because trade is the voluntary exchange of goods and services, the decision to trade will occur only if both parties to the exchange expect to gain from it.
- Voluntary trade promotes economic progress because it allows people to specialize in what they do best.
- The law of comparative advantage explains why there are mutual gains from specialization and trade.
- A nation has an absolute advantage over another nation in the production of a good when it can produce more of that good using the same amount of resources.
- Comparative advantage occurs when a nation can produce a good at a lower opportunity cost than another nation. Relative costs determine comparative advantage.
- Trade barriers such as tariffs and quotas limit the potential gains from trade. Trade barriers generally protect domestic sellers at the expense of domestic buyers. They reduce efficiency in the allocation of scarce resources and slow down economic progress.
- The balance of payments is a broader measure of international transactions than the balance of trade. The balance of trade considers only a nation's exports and imports of goods while the balance of payments considers all international economic transactions including the current account, the capital account, and official reserves.
- To trade, nations must exchange currencies. An exchange rate is the price of one currency in terms of another and is generally set by supply and demand.
- Appreciation is an increase in the value of a nation's currency in foreign exchange markets. Appreciation of a nation's currency tends to reduce exports and increase imports.
- Depreciation is a decrease in the value of a nation's currency in foreign exchange markets. Depreciation of a nation's currency tends to increase exports and reduce imports.
- Monetary and fiscal policies can affect exchange rates and the international balance of payments.
- Domestic economic policies affect international trade, and international trade affects the domestic economy influencing economic growth, unemployment, and the rate of inflation.

ACTIVITY 55
The Iowa Car Crop*

Read the following essay and answer the questions that follow.

There are two technologies for producing automobiles in America. One is to manufacture them in Detroit, and the other is to grow them in Iowa. Everybody knows about the first technology; let me tell you about the second. First you plant seeds, which are the raw material from which automobiles are constructed. You wait a few months until wheat appears. Then you harvest the wheat, load it onto ships, and sail the ships eastward into the Pacific Ocean. After a few months, the ships reappear with Toyotas on them.

International trade is nothing but a form of technology. The fact that there is a place called Japan, with people and factories, is quite irrelevant to Americans' well-being. To analyze trade policies, we might as well assume that Japan is a giant machine with mysterious inner workings that convert wheat into cars.

Any policy designed to favor the first American technology over the second is a policy designed to favor American auto producers in Detroit over American auto producers in Iowa. A tax or a ban on "imported" automobiles is a tax or a ban on *Iowa-grown* automobiles. If you protect Detroit car makers from competition, then you must damage Iowa farmers, because Iowa farmers *are* the competition.

The task of producing a given fleet of cars can be allocated between Detroit and Iowa in a variety of ways. A competitive price system selects that allocation that minimizes the total production cost. It would be unnecessarily expensive to manufacture all cars in Detroit, unnecessarily expensive to grow all cars in Iowa, and unnecessarily expensive to use the two production processes in anything other than the natural ratio that emerges as a result of competition.

That means that protection for Detroit does more than just transfer income from farmers to autoworkers. It also raises the total cost of providing Americans with a given number of automobiles. The efficiency loss comes with no offsetting gain; it impoverishes the nation as a whole.

There is much talk about improving the efficiency of American car manufacturing. When you have two ways to make a car, the road to efficiency is to use both in optimal proportions. The last thing you should want to do is to artificially hobble one of your production technologies. It is sheer superstition to think that an Iowa-grown Camry is any less "American" than a Detroit-built Taurus. Policies rooted in superstition do not frequently bear efficient fruit.

In 1817, David Ricardo—the first economist to think with the precision, though not the language, of pure mathematics—laid the foundation for all future thought about international trade. In the intervening 150 years his theory has been much elaborated but its foundations remain as firmly established as anything in economics. Trade theory predicts first that *if you protect American producers in one industry from foreign competition, then you must damage American producers in other industries.* It predicts second that *if you protect American producers in one industry from foreign competition, there must be a net loss in economic efficiency.* Ordinarily, textbooks establish these propositions through graphs, equations, and intricate reasoning. The little story that I learned...makes the same propositions blindingly obvious with a single compelling metaphor. That is economics at its best.

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ACTIVITY 55 continued

1. Why are consumers hurt if government policies favor Detroit car makers rather than Iowa farmers?

2. Why does trade result in the most efficient production of goods and services?

3. Why do people and nations gain when they trade?

4. True, false, or uncertain, and why? "The economic goal of international trade is to maximize our exports and to provide jobs for Americans."

ACTIVITY 56
Determining Comparative Advantage

Part A. Background Information

Nations trade on the basis of comparative advantage, but how do we determine who has a comparative advantage? The first thing to do is to decide whether the problem is an *output* problem or an *input* problem.

An output problem states that each person gets a certain amount of product out of a given input. Examples of output are tons per acre, miles per gallon, words per minute, apples per tree, and televisions produced per hour.

An input problem states that it takes a certain amount of input to get a given product. Examples of input are number of hours to do a job, number of gallons of paint to paint a house, number of acres to feed a horse, and number of pitches to throw a strike.

Now let's determine who has an absolute advantage. For output it is the one that gets the *most* output. For input it is the one that uses the *least* input. If a person has an absolute advantage in product A and the other person has an absolute advantage in product B, that is also the comparative advantage for each of them. They should each produce that product for which they have the absolute advantage and trade for the other product.

Here is an example for output:

Output—Fish and Cheese

	Tons produced per hour	
	FISH	*CHEESE*
Ted	60	25
Nancy	45	40

Ted should produce fish while Nancy should produce cheese. This yields the *most* fish and cheese per hour of any combination of production.

Here is an example for input:

Input—Eggs and Muffins

	Pounds of corn to make one dozen	
	EGGS	*MUFFINS*
James	2	2
Becky	3	1

James should produce eggs while Becky should produce muffins. No other combination uses *less* corn to get the yield of eggs and muffins.

The problem with comparative advantage comes when one person or country has an absolute advantage in both products. The solution to this problem lies in which one has the *lowest opportunity cost* in producing a good.

Activity adapted by Jerry DeYoung, Riverbank High School, Riverbank, CA, from Jim Charkins, California State University-San Bernardino, "Working Paper 1993-12."

ACTIVITY 56 continued

Output Method

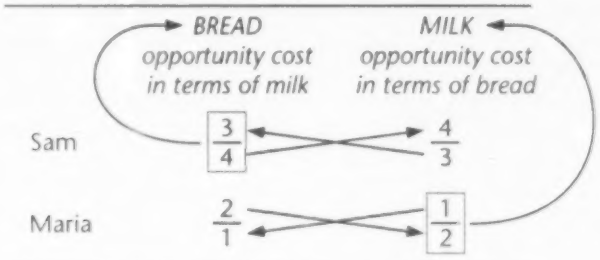
Put the output of each product over the output of the other product for each person. (To remember this, consider that "output" starts with "o" and "over" begins with "o.") This makes a fraction. Reduce the fraction to the lowest possible denominator. Compare the opportunity cost for each person for each product. The person with the smallest opportunity cost should produce the good that costs less and trade for the other good. Proof: Add up the amount produced and you will see that no other combination yields as much product. Study the following example:

Bread and Milk

	Produced per hour	
	BREAD	*MILK*
Sam	4	3
Maria	1	2

Sam has an absolute advantage in both so we must set up a worksheet to calculate the opportunity cost of each good for each person. Put the output of each product over the output of the other product for each person.

Worksheet for Bread and Milk



Compare by deciding which person can produce which product for the least opportunity cost. Since 3/4 is less cost than 2/1, Sam should make bread; 1/2 is less cost than 4/3 so Maria should specialize in milk.

Input Method

Input is the opposite of output so we do it the opposite way. Put the input required for each product under the input required for the other product for each person. (An aid to help you remember could be that with "input" you divide the number "into" the other number so it goes under it. "Input" and "into" both begin with "i.") Now we are ready to do the same as we did for output. Reduce this fraction to the lowest possible denominator. Compare the opportunity cost for each product. The person with the smallest opportunity cost should produce that which costs least and trade for the other good. Proof: Add up the amount of input required to produce and you will see that no other combination uses as little input for the product produced. Here is an example:

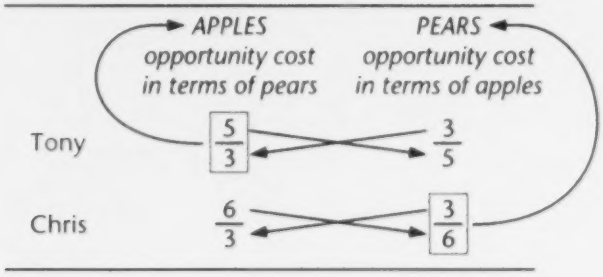
ACTIVITY 56 continued

Apples and Pears

	Acres required to produce one unit of	
	APPLES	*PEARS*
Tony	5	3
Chris	6	3

Tony has an absolute advantage in apples and Tony and Chris are equal in pears so we must set up a worksheet to calculate the opportunity cost of each good for each person. Put the input required to produce each product under the input required to produce the other product.

Worksheet for Apples and Pears



Compare by deciding which person can produce which product for the least opportunity cost. Since 5/3 is less than 6/3 Tony should produce apples; 3/6 is less than 3/5 so Chris should produce pears.

As you can see, once you have the fraction for one side, the other side is the reciprocal. The problem is knowing which number goes over and which goes under.

Output = Over .....Input = Under

Part B. Practice Problems.
Circle the product that should be produced by each person or country. Then circle "output" or "input" to show whether it is an output or an input problem. Use scratch paper to set up the opportunity cost of each product. The first one is completed for you.

1. Anna and Barry can produce the following units of potatoes and cabbage with the same amount of labor.

Potatoes and Cabbage

	Potatoes	*Cabbage*	
Anna	100	[200]	[output] / input
Barry	[120]	150	

ACTIVITY 56 continued

2. Number caught per day.

Deer and Antelope

	Deer	*Antelope*	
Henry	4	6	output / input
John	24	12	

3. Days to produce one unit of each.

Cars and Planes

	Cars	*Planes*	
XYZ Corp.	8	10	output / input
QKFX Corp.	15	12	

4. Acres to produce 100 bushels.

Corn and Rice

	Corn	*Rice*	
India	9	3	output / input
Afghanistan	8	2	

5. To produce the following from one ton of olives.

Canned Olives and Olive Oil

	Canned olives	*Units of olive oil*	
Zaire	60	10	output / input
Colombia	24	8	

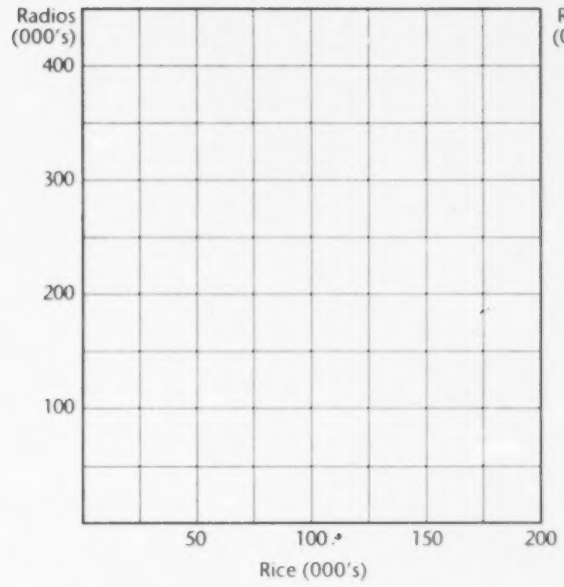
ACTIVITY 57
The Gains from International Trade

Use the data on the *Radios and Rice* graphs to illustrate the potential gains from trade using the theory of comparative advantage.

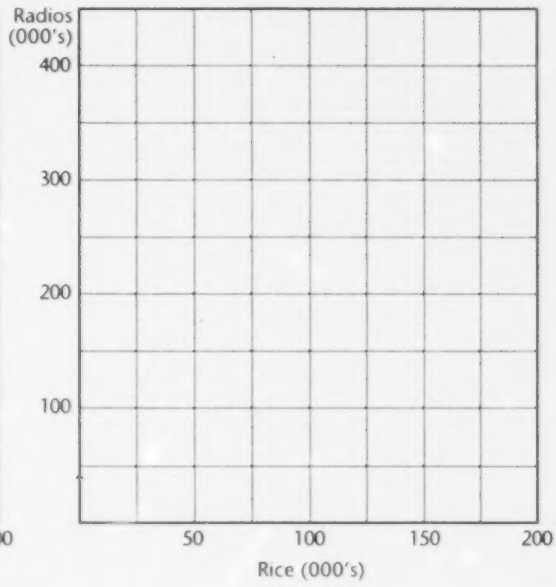
> Indonesia today has the labor force, capital, natural resources, and technology to produce at most 50,000 radios *or* at most 100,000 pounds of rice *or* some combination in between.
>
> Japan, by contrast, can product at most 400,000 radios *or* 100,000 pounds of rice *or* some combination in between.

1. Draw a production possibilities curve (PPC) for each country.

Indonesia—Radios and Rice



Japan—Radios and Rice



Adapted from a homework problem developed by Jonathan Wight, University of Richmond, Richmond, VA.

ACTIVITY 57 continued

2. Calculate opportunity costs of production in the table *Indonesia and Japan—Radios and Rice*.

Indonesia and Japan—Radios and Rice

	Opportunity cost to produce	
	One pound more of rice	*One more radio*
Japan	_____	_____
Indonesia	_____	_____

3. Which nation has an absolute advantage in rice production? _____

4. Which nation has an absolute advantage in radio production? _____

5. Which nation has a comparative advantage in rice production? _____

6. Which nation has a comparative advantage in radio production? _____

7. Suppose that trade takes place between the two countries and that the international barter price of one pound of rice now equals two radios. What is the implied barter price of radios? _____

8. Assuming that each country specializes completely in the product for which it has a comparative advantage, show with a dotted line on your *Radios and Rice* graphs the new consumption possibilities curve (CPC) for each country (with numbers on the axes). This is called a consumption possibilities curve because consumption at these levels can take place only after trade. How do you know consumers are better off in each country?

ACTIVITY 58

Economic Efficiency and the Gains from Trade

The following problems on comparative advantage illustrate how two nations can trade even if one is more efficient at producing both products. The country that is more efficient in the production of a good is the country that can produce the good with the least input. In other words, if the United States can produce a ton of oats in three hours and Scotland can produce a ton of oats in four hours, the United States is more efficient in the production of oats. In the language of economics, the United States would have an absolute advantage in the production of oats.

A nation has a comparative advantage in the good in which it has the lowest opportunity cost. To determine opportunity cost, put the input required to produce each product under the input required to produce the other product. The nation should specialize in that good for which it has the lowest opportunity cost and trade for the good for which the other country has the lowest opportunity cost.

Cross out the incorrect words in parentheses and complete the questions.

1.

United States and Scotland—Oats and Bagpipes

	Oats (tons)	*Bagpipes*
United States	3 hours	2 hours
Scotland	4 hours	5 hours

a. *(The United States/Scotland)* has an absolute advantage in the production of oats.

b. *(The United States/Scotland)* has an absolute advantage in the production of bagpipes.

c. *(The United States/Scotland)* has a comparative advantage in the production of oats because

d. *(The United States/Scotland)* has a comparative advantage in the production of bagpipes because

e. The United States should specialize in *(oats/bagpipes)*.

f. Scotland should specialize in *(oats/bagpipes)*.

g. Why will both Scotland and the United States be better off if they specialize and trade?

Activity developed by John Morton.

ACTIVITY 58 continued

2.

United States and Canada—Wheat and Cloth

	Wheat (tons)	*Cloth (bolts)*
United States	1 hour	2 hours
Canada	3 hours	4 hours

a. *(The United States/Canada)* has an absolute advantage in the production of wheat.

b. *(The United States/Canada)* has an absolute advantage in the production of cloth.

c. *(The United States/Canada)* has a comparative advantage in the production of wheat because

d. *(The United States/Canada)* has a comparative advantage in the production of cloth because

e. The United States should specialize in *(wheat/cloth)*.

f. Canada should specialize in *(wheat/cloth)*.

g. Why will both Canada and the United States be better off if they specialize and trade?

ACTIVITY 58 continued

3.

United States and Japan—Computers and Autos

	Computers	*Autos*
United States	2 hours	5 hours
Japan	1 hour	4 hours

a. *(The United States/Japan)* has an absolute advantage in the production of computers.

b. *(The United States/Japan)* has an absolute advantage in the production of autos.

c. *(The United States/Japan)* has a comparative advantage in the production of computers because

d. *(The United States/Japan)* has a comparative advantage in the production of autos because

e. The United States should specialize in *(computers/autos)*.

f. Japan should specialize in *(computers/autos)*.

g. Why will both Japan and the United States be better off if they specialize and trade?

ACTIVITY 59
Barriers to Trade

Tariffs

Exhibit 1

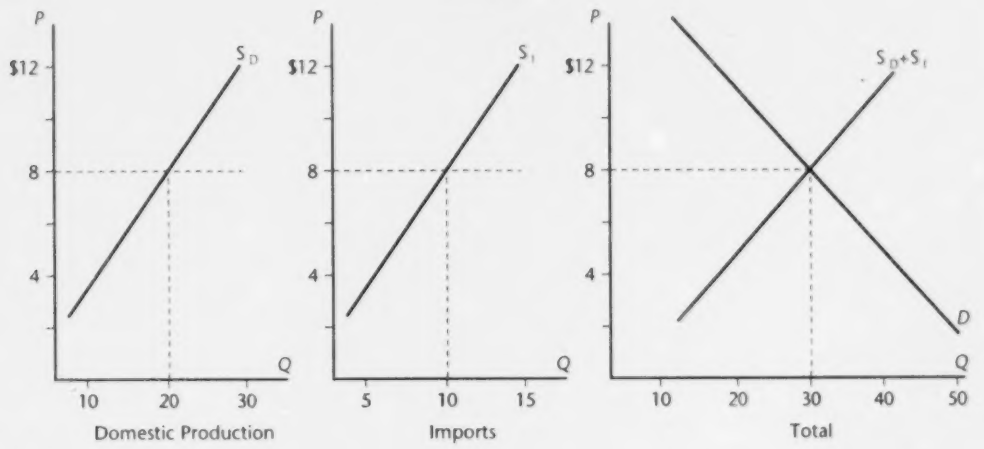


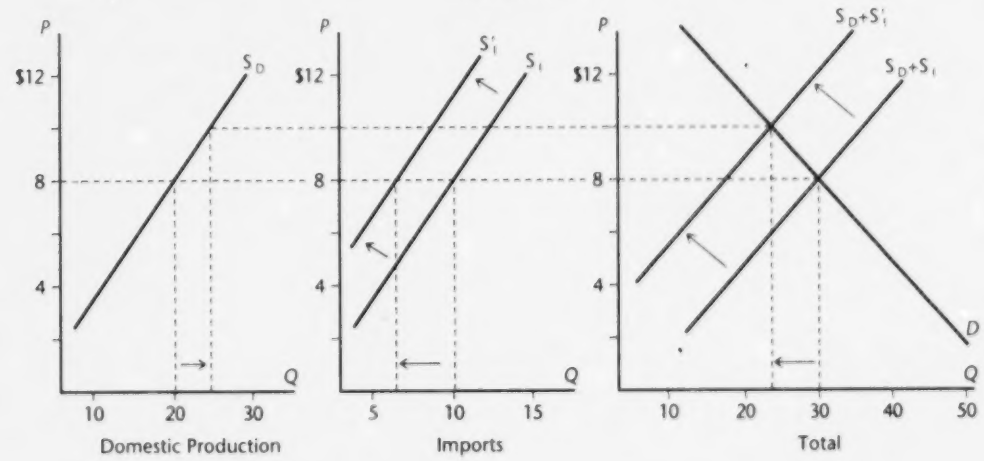
Exhibit 1 demonstrates how you can determine the supply of a good, such as automobiles, that is both imported and produced domestically.

The *Domestic Production* graph shows that at a price of $8, twenty units would be produced domestically, while the *Imports* graph indicates that at the same price, importers would like to sell ten units. This information is combined in the *Total* graph, which shows that 30 units total would be supplied at the $8 price. Other points on the *Total* graph are similarly constructed.

The position of the demand curve indicates that the equilibrium price is in fact $8 and the equilibrium quantity is 30. Of this total, domestic producers will supply twenty and importers will supply ten.

The diagrams in *Exhibit 2* are modified to reflect enactment of a tariff. Note that price and domestic production rise, while imports fall.

Exhibit 2



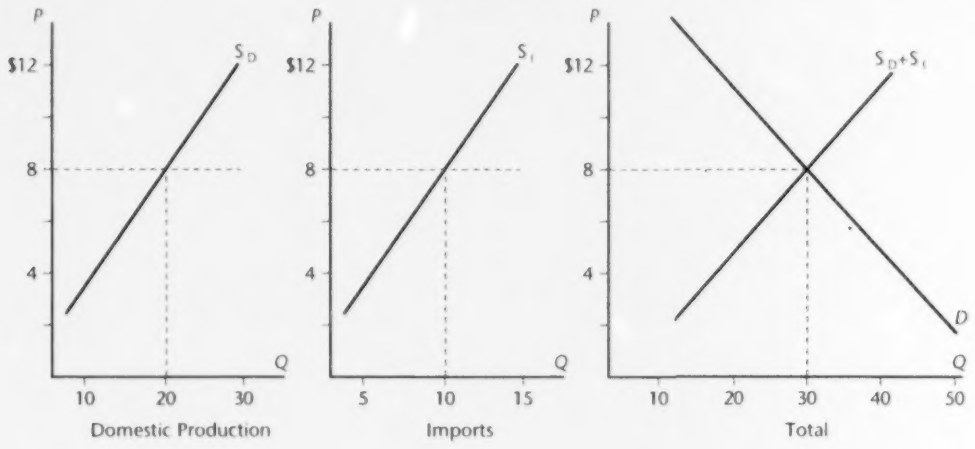
Activity developed by Donald Wentworth, Pacific Lutheran University, Tacoma, WA.

ACTIVITY 59 continued

Quotas

As in *Exhibit 2*, modify the "free trade" situation in *Exhibit 3* to reflect the enactment of a quota limiting imports to only five units. Indicate the effect on price, domestic production, and imports. This quota means that no more than five units can be imported into the United States during this time period.

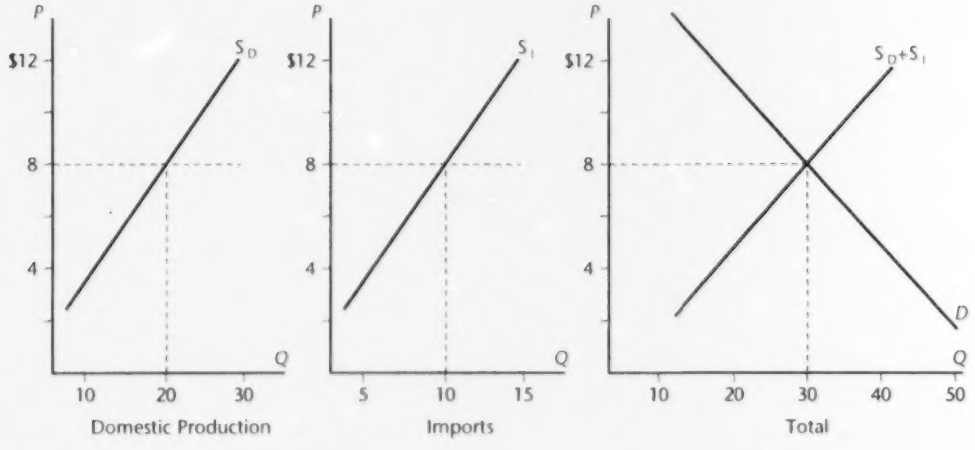
Exhibit 3



Subsidies

Modify the "free trade" situation in *Exhibit 4* to reflect the enactment of a subsidy to domestic producers. Indicate the effect on price, domestic production, and imports.

Exhibit 4



ACTIVITY 60
Imbalance of Payments

Imagine yourself eating lunch at a posh Washington, DC, restaurant. Seated at the next table are Ms. Deficit, a U.S. trade negotiator, and her German counterpart, Sir Plus. Let's listen in on their conversation as they discuss the trade problems of their respective countries.

Ms. Deficit: This imbalance in our trade cannot continue. The deficit in our balance of payments has put many of our exporters out of business and is pushing us into a recession.

Sir Plus: My country agrees that the situation cannot continue. The surplus in our balance of payments is raising the price of our imported goods, and our exports are so high that we are left with fewer products at home.

Ms. Deficit: So we agree that something needs to be done, but what? Some of our businesses are calling for tariffs, and others want us to devalue our currency, but neither of those are acceptable policies to our government.

Sir Plus: Likewise, we could raise the value of our currency, but this action will surely cost the president his job.

Fortunately, the waiter arrives sparing us the rest of their conversation. While the food is being prepared, let's investigate some of the concepts the two diplomats were discussing.

Just what is a *balance of payments*? Quite simply, it is an accounting of all the payment flows going out of and entering a country, whether from individuals, businesses, or the government. The U.S. Department of Commerce records international transactions to help policymakers make intelligent decisions concerning world trade and finance.

These transactions are divided initially into two categories: those earning foreign currency (principally exports), called *credits*, and those using foreign currency (principally imports), called *debits*.

Determining whether a transaction earns or uses foreign currency is a simple way of keeping track of whether it is a credit or debit. Consider the export of an automobile from the United States to Canada. The Canadian buyer will supply the market with Canadian dollars in order to acquire the U.S. dollars needed to pay the U.S. supplier. Likewise, a Mexican tourist in the United States will supply pesos to the market in exchange for dollars. Both transactions are recorded as credit items in the balance of payments.

A U.S. tourist who plans to visit Mexico must supply U.S. dollars to the market in exchange for pesos. A U.S. film buyer who wishes to acquire film rights to German movies must supply U.S. dollars to the market in exchange for marks. Both transactions are recorded as debit items in the balance of payments.

Activity developed by Donald Wentworth, Pacific Lutheran University, Tacoma, WA.
Part of the activity adapted from William B. Walstad and Robert C. Bingham, *Study Guide to Accompany McConnell and Brue Economics*, Twelfth edition (New York: McGraw-Hill, 1993).

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ACTIVITY 60 continued

Now it is your turn to record some international transactions. Record each of the transactions on the chart, *Balance of Payments—United States and Germany*, to show the respective balance-of-payments accounts of the United States and Germany. The first transaction has been done for you.

Balance of Payments—
United States and Germany

	U.S.		Germany	
	Debit	Credit	Debit	Credit
1. United States sells $1 million of steel to German builder.		$1 m	$1 m	
2. Bank of America pays $5 million in interest to German depositors.				
3. U.S. citizens spend $3 million on Mercedes automobiles built in Germany.				
4. A U.S. firm receives a $2 million dividend on its investments in Germany.				
5. German tourists spend $3 million in the United States, while U.S. tourists spend $5 million in Germany.				
6. A German firm pays $1 million to a U.S. shipping line for transporting a load of cars.				
7. U.S. exchange students spend $8 million for tuition at the university in Bonn, Germany.				
8. The German government buys a $10 million missile from the U.S. Army to shore up its defenses				
TOTAL				

ACTIVITY 60 continued

The transactions in the examples in the chart are all recorded in what is known as the *current account* and are what most of us think of as exports and imports. Notice that the United States has exported less than it has imported and is left with a deficit in the current account (debits exceed credits). Germany has exactly the opposite problem.

Is this deficit a bad thing for the United States, or is Germany's surplus a bad thing for them? Here we must investigate a bit further. Ah, an international banker has arrived to join the trade negotiators. Let's hear what she has to say.

Ms. Money: You two ar both missing half the story! If the United States is importing more than it is exporting, how is it paying for the imports? By definition, what is acquired in imports must be either paid for or owed. What you have been ignoring is the flow of capital—the so-called capital accounts.

Ms. Deficit: What has that got to do with this terrible deficit in our accounts?

Sir Plus: Or our surplus?

Ms. Money: Let's consider your country's situation, Sir Plus. Your country is earning far more foreign exchange (especially U.S. dollars) on its exports than it is using for its imports. What is happening to all those funds? Or your country, Ms. Deficit. How is it paying for all those imported Mercedes?

Sir Plus: I see what you mean. Many of our banks have reinvested those dollars back in the U.S. banks and are earning interest on them. Other companies are investing in buildings and other projects overseas as well.

Ms. Deficit: And I believe we are also obtaining funds from your citizens who are buying U.S. government bonds, helping to finance our government's budget deficit, and helping to keep our taxes down.

Ms. Money: Correct. So now you understand that a current account deficit or surplus is simply a measure of goods and services being exchanged, but it does not tell us much about the total amount of currency changing hands. You both were talking about an "imbalance" of trade as if your exchanges were like a teeter-totter with a football player on one end and a ballerina on the other—a game that would end very quickly because of dissatisfaction from both sides. I think now you understand that every exchange is beneficial to both sides, and that the perceived imbalance in your trade is really balanced by other, perhaps less visible, activities. If trade was truly imbalanced, like the teeter-totter, it would stop very quickly.

Thank goodness that discussion is cleared up. Let's look closer at the capital account.

Suppose the United States borrows funds from Germany to finance our imports. Is this borrowing a credit or debit item? To answer this question, it is easiest to think of the United States as an exporter of an IOU, and like other exports, this would be recorded as a credit. As before, this borrowing of funds would gain foreign currency for the United States, which was our definition of a credit. Likewise, if a U.S. bank lends money to a German investor to build a new skyscraper building, this would lead to a debit in our balance-of-payments capital account.

These two accounts, the current and capital accounts, record the flows of currency into and out of the United States almost completely. But like any measures, they are not completely accurate. The accounts include a place for a "statistical discrepancy" to measure unrecorded transactions, and another account to measure movements of official intergovernmental settlements (principally gold and what are known as "special drawing rights," a type of international currency).

ACTIVITY 60 continued

The table *Current and Capital Accounts* contains hypothetical international balance of payments data for the United States. All figures are in billions. Compute the missing figures and answer the questions that follow.

Current and Capital Accounts

Current account			
(1)	U.S. merchandise exports	$+150	
(2)	U.S. merchandise imports	−200	
(3)	Balance of trade		_____
(4)	U.S. exports of services	+75	
(5)	U.S. imports of services	-60	
(6)	Balance on goods and services		_____
(7)	Net investment income	+12	
(8)	Net transfers	−7	
(9)	Balance on current account		_____
Capital account			
(10)	Capital inflows to the U.S.	+80	
(11)	Capital outflows from the U.S.	−55	
(12)	Balance on capital account		_____
(13)	Current and capital account balance		_____
(14)	Official reserves		_____
			$ 0

The United States had a payment *(deficit/surplus)* of $ _____ .

1. Does the U.S. current account have a deficit or surplus? How do you know?

2. On balance, is the United States borrowing or lending money? How do you know?

3. Can this situation continue? *(Hint:* Think of who gains and who loses in any voluntary exchange between two parties.)

ACTIVITY 61
Using Foreign Exchange Rates

Money is bought and sold like any other commodity in the market. Its price, which is called the *exchange rate*, is based on the supply of and demand for money at a particular time. The tables show exchange rates for May and July of the same year.

Exchange Rates—May

	Cost of U.S. $ in foreign currency	*Cost of foreign currency in U.S. $*
Britain (pound)	0.56	1.80
Canada (dollar)	1.20	.83
France (franc)	5.52	.18
Germany (mark)	1.64	.61
Japan (yen)	132.72	.0076
Mexico (peso)	3.12	.32

Exchange Rates—July

	Cost of U.S. $ in foreign currency	*Cost of foreign currency in U.S. $*
Britain (pound)	0.52	1.92
Canada (dollar)	1.19	.84
France (franc)	5.00	.20
Germany (mark)	1.48	.68
Japan (yen)	125.10	.008
Mexico (peso)	3.44	.29

Part A.

1. Using the exchange rate tables, calculate the cost of the following products in U.S. dollars. To solve these problems, divide the cost in the foreign currency by the cost of the U.S. dollar in the foreign currency.

		May	July
a.	A fake fur coat that costs C$500 in Toronto	_____	_____
b.	A hotel room that costs 30,000 yen in Tokyo	_____	_____
c.	A cup of cappuccino that costs three francs in Paris	_____	_____
d.	A BMW that costs 65,000 marks in Germany	_____	_____
e.	A skirt that costs 120 pesos in Mexico City	_____	_____
f.	A coat that costs 65 pounds in London	_____	_____

Activity developed by Sarah Franklin, Plano Senior High School, Plano, TX, and Nancy Griffin and Ruth Kramp, Plano East Senior High School, Plano, TX

ACTIVITY 61 continued

2. Using the exchange rate tables, compute the following for both May and July. How much would foreign tourists have to pay in their own currency for an American hotel room that cost $79? To solve these problems, divide the cost in U.S. dollars by the cost of the foreign currency in U.S. dollars.

	May	July
a. British pounds	_____	_____
b. Canadian dollars	_____	_____
c. French francs	_____	_____
d. German marks	_____	_____
e. Japanese yen	_____	_____
f. Mexican pesos	_____	_____

3. Did the value of the dollar appreciate (strengthen) or depreciate (weaken) against the:

pound _____ franc _____ mark _____

yen _____ Canadian dollar _____ peso _____

Part B.

Answer the following questions.

1. When the international value of the dollar decreased, what happened to the price of foreign goods for Americans?

2. When the international value of the dollar decreased, what happened to the price of American goods for people from other countries?

3. When the international value of the dollar increased, what happened to the price of foreign goods for Americans?

4. When the international value of the dollar increased, what happened to the price of American goods for people from other countries?

ACTIVITY 62

Using Supply and Demand to Analyze Exchange Rates

1. In foreign exchange markets an increase in the demand for foreign exchange, say marks (DM), is also an increase in the supply of dollars. Use the *Market for $—Supply* and *Market for DM—Supply* diagrams to explain what would happen to the equilibrium exchange rate (currently $1 = DM3; DM1 = $.33 with 100 dollars being exchanged for 300 marks) if the U.S. demand for marks increased as shown in the *Market for DM* diagram. Draw in whatever new curves you need in the *Market for $* diagram, and answer these questions:

   a. The new equilibrium exchange rate is $1 = DM _____ (DM1 = $ _____).

   b. At this exchange rate _____ dollars will be exchanged for _____ marks.

2. At the new exchange rate, with other things constant:

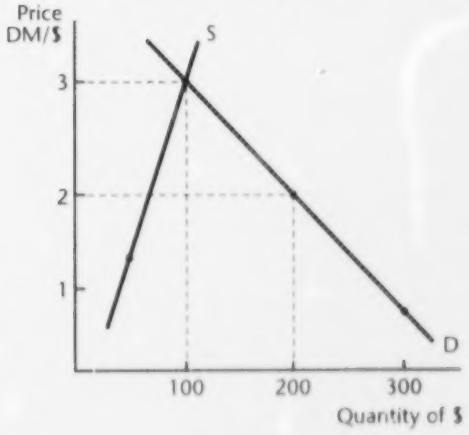
   a. Is the price of U.S. exports to Germany likely to increase or decrease? _____ Why? Explain.

   b. Is the price of U.S. imports from Germany likely to increase or decrease? _____ Why? Explain.

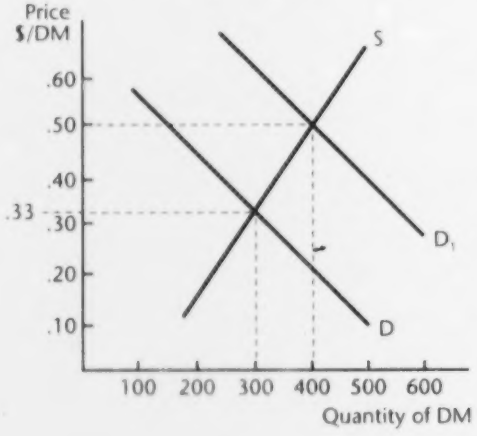
   c. Will U.S. workers become cheaper or more expensive for German manufacturers to hire? _____ Why? Explain.

   d. Will German workers become cheaper or more expensive for U.S. manufacturers to hire? _____ Why? Explain.

Market for $—Supply
(German exchange rate)



Market for DM—Supply
(U.S. exchange rate)



Adapted from Phillip Saunders, *Introduction to Macroeconomics: Student Workbook*, Fifteenth edition, Bloomington, IN, 1993.
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ACTIVITY 62 continued

3. In foreign exchange markets an increase in the demand for dollars is also an increase in the supply of a foreign currency, say marks (DM). Use the diagrams *Market for $—Demand* and *Market for DM—Demand* to explain what would happen to the equilibrium exchange rate [currently ($1 = DM2) (DM1 = $.50) with 200 dollars being exchanged for 400 marks] if the German demand for dollars increased as shown in the *Market for $* diagram. Draw in whatever new curves you need in the *Market for DM* diagram, and answer the questions.

   a. The new equilibrium exchange rate is $1 = DM _____ (DM1 = $ _____).

   b. At this exchange rate _____ dollars will be exchanged for _____ marks.

4. At the new exchange rate, with other things constant:

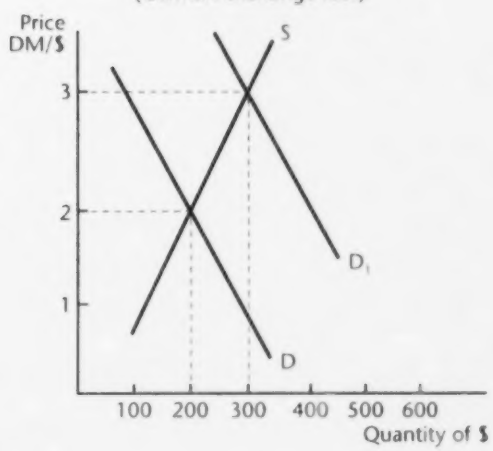
   a. Is the price of U.S. exports to Germany likely to increase or decrease? _____ Why? Explain.

   b. Is the price of U.S. imports from Germany likely to increase or decrease? _____ Why? Explain.

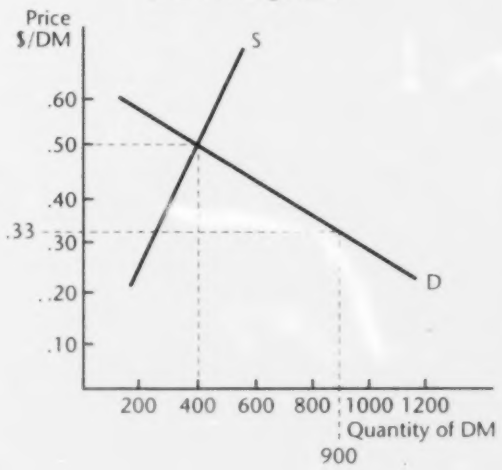
   c. Will U.S. workers become cheaper or more expensive for German manufacturers to hire? _____ Why? Explain.

   d. Will German workers become cheaper or more expensive for U.S. manufacturers to hire? _____ Why? Explain.

Market for $—Demand
(German exchange rate)



Market for DM—Demand
(U.S. exchange rate)



ACTIVITY 63

The International Effects of Monetary and Fiscal Policies

Monetary and fiscal policies affect exchange rates, and the change in exchange rates affects the balance of trade. Changes in exchange rates can also affect the level of aggregate demand in a nation. This means that the international effects of monetary and fiscal policies affect exchange rates which, in turn, affect a country's interest rates, inflation rate, unemployment rate, and level of output. In other words, domestic policy actions affect international finance and trade, and international exchange rates affect domestic policy goals. Domestic monetary and fiscal policies cannot be conducted today without considering their international effects.

For each of the situations below:

- *Evaluate* the expected effects on the exchange rates of the United States and Japan, all other things equal.
- *Describe* the impact on the U.S. economy, including the effects for U.S. importers and exporters and the probable effect on the balance of trade.

Use sound economic reasoning and appropriate economic models to support your answers. The use of supply and demand graphs and of aggregate supply and aggregate demand graphs will improve your answer in several of the problems.

1. An easy money policy is adopted by the U.S. Federal Reserve while Japan's interest rates are increasing.

2. Relative interest rates in Japan increase because of increased government spending on defense.

3. The U.S. federal budget deficit increases.

Activity developed by Sarah Franklin, Plano Senior High School, Plano, TX, and Nancy Griffin and Ruth Kramp, Plano East Senior High School, Plano, TX.

ACTIVITY 63 continued

4. There is a rapid increase in the Japanese price level while the price level in the United States remains relatively constant.

5. The Japanese economy is expanding while the U.S. economy is stagnating.

6. U.S. jeans become very fashionable among Japanese teenagers.

ACTIVITY 64
The International Way of Thinking

Write the answers to these questions on a separate sheet of paper.

1. True, false, or uncertain, and why? "Nations do not trade; people trade."

2. Use one example from your own life when you specialized in doing something in which you had a comparative advantage and traded for something in which someone else had a comparative advantage.

3. Assume that the United States has placed a high tariff on foreign bicycles.
   a. Use a supply and demand graph to show the effect of the tariff on the U.S. market for foreign-produced bicycles.
   b. Use a supply and demand graph to show the effect of the tariff on the U.S. market for domestically produced bicycles.
   c. What are the effects of the tariff on:
      (1) Foreign bicycle manufacturers?
      (2) Domestic bicycle manufacturers?
      (3) U.S. consumers?

4. The chart *Germany and France—Wine and Cheese* shows how much wine and cheese Germany and France can produce in a day.

Germany and France—Wine and Cheese

	Wine (liters)	*Cheese (kilos)*
Germany	25	30
France	50	40

   a. Which country has an absolute advantage in wine production? Why?
   b. Which country has an absolute advantage in cheese production? Why?
   c. Which country has a comparative advantage in wine production? Why?
   d. Which country has a comparative advantage in cheese production? Why?
   e. What should France import? What should France export?
   f. What should Germany import? What should Germany export?

5. For each of the following situations, explain the effect of the event on *the value of the U.S. dollar* in relation to the Mexican peso. Draw a supply and demand graph to illustrate each situation.
   a. Americans buy large quantities of Mexican tomatoes.
   b. Inflation in Mexico rises at a higher rate than in the United States.
   c. Americans invest heavily in Mexico because they feel the Mexican economy will be strong.
   d. Interest rates rise in the United States. and have become relatively higher compared to Mexican interest rates.
   e. Mexico becomes a much more popular tourist destination for Americans.

ACTIVITY 64 continued

6. Explain three effects of a new law that would forbid U.S. citizens and businesses from trading with any other country.

7. Assume that the United States has large federal budget deficits that cause interest rates to rise.
   a. What would be the effect of this on the international value of the dollar? Why?
   b. What would be the effect of this on the U.S. balance of trade? Why?
   c. Would the budget deficit and higher interest rates tend to increase or decrease aggregate demand? Why?

8. How could a nation have a negative balance of trade and still not have a deficit in its balance of payments?

Sample Multiple-Choice Questions

Circle the letter of each correct answer.

1. When does the law of comparative advantage indicate that mutually beneficial international trade can take place?
   a. When tariffs are eliminated.
   b. When transportation costs are almost zero.
   c. When relative costs of production differ between nations.
   d. When a country can produce more of some product than other nations can.
   e. When a country can produce a product in less time than another country can.

2. According to the principle of comparative advantage, worldwide output and consumption levels will be highest when goods are produced in nations where which of the following is true?
   a. Opportunity costs are lowest.
   b. Absolute advantages are highest.
   c. The balance of trade is in a surplus position.
   d. The exchange rate is falling.
   e. The exchange rate is rising.

3. Which of the following is *not* a commonly heard argument for protectionism?
   a. A strong national defense requires that some military products be produced domestically.
   b. Infant industries need short-run, but not long-run, protection from foreign competition.
   c. Specialization along the lines of comparative advantage can lead to a lower standard of living.
   d. When other nations' economies grow, the nations typically import fewer goods and services.
   e. If a nation does not protect its industries, jobs will go to people in other countries.

4. What does a balance-of-trade surplus imply?
   a. Merchandise exports exceed merchandise imports.
   b. Merchandise imports exceed merchandise exports.
   c. Exports of services exceed imports of services.
   d. Imports of services exceed exports of services.
   e. Investment by foreigners exceeds domestic investment in other countries.

5. Which of the following transactions represents a deficit on the current account section of the U.S. balance of payments?
   a. The Arab Capital Investment Corporation makes a loan to a U.S. firm.
   b. A U.S. subsidiary exports raw materials to its Canadian parent company.
   c. U.S. firms and individuals receive dividends on U.S. investments in Latin America.
   d. U.S. tourists in Great Britain purchase pounds sterling.
   e. Foreigners purchase U.S. securities.

6. What can an increase in U.S. interest rates be expected to do?
   a. Adversely affect U.S. importers.
   b. Encourage investment spending by U.S. firms.
   c. Decrease the international value of the dollar.
   d. Cause a net outflow of foreign capital from the United States.
   e. Increase the international value of the dollar.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

7. What happens if a nation does *not* have an absolute advantage in producing anything?
   a. It has no comparative advantage either.
   b. It will have a comparative advantage in the activity in which it has a lower opportunity cost.
   c. It will try to get along without trade.
   d. It will export raw materials and import finished products.
   e. The international value of its currency will rise.

8. How would an expansionary monetary policy affect foreign investment in the United States and the international value of the dollar?

	Foreign investment	Value of the dollar
a.	Decrease	Appreciate
b.	Decrease	Depreciate
c.	Increase	Appreciate
d.	Increase	Depreciate
e.	No change	Depreciate

9. The following data show the quantities of soda and cheese that can be produced in the United States and France with one unit of resources.

	Soda (bottles)	Cheese (pounds)
United States	20	60
France	10	40

Which of the following statements is/are true?
   I. France has an absolute advantage in soda.
   II. The United States has a comparative advantage in soda.
   III. The United States has an absolute advantage in cheese.
   IV. The United States has a comparative advantage in cheese.

   a. I only
   b. II only
   c. II and III only
   d. II and IV only
   e. I, II, and III only

10. If a contractionary monetary policy raises interest rates in the United States, what will happen to the value of the U.S. dollar, the value of the Japanese yen, and the U.S. balance of trade?

	Dollar	Yen	Balance of trade
a.	Appreciate	Depreciate	Toward deficit
b.	Appreciate	Appreciate	Toward deficit
c.	Appreciate	Depreciate	Toward surplus
d.	Appreciate	Depreciate	Toward surplus
e.	No change	Appreciate	Toward deficit

11. What will be the effect of depreciating a nation's currency on net exports and aggregate demand?

	Net exports	Aggregate demand
a.	Decrease	Increase
b.	Decrease	Decrease
c.	Increase	Increase
d.	Increase	Decrease
e.	No change	Decrease

12. What would happen to interest rates, exports, and imports if the United States followed an expansionary fiscal policy and a contractionary monetary policy so that there was no net change in aggregate demand?

	Interest rate	Exports	Imports
a.	Increase	Decrease	Decrease
b.	Decrease	Increase	Decrease
c.	Decrease	Decrease	Increase
d.	No change	Decrease	Increase
e.	Increase	Decrease	Increase

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

13. The value of the U. S. dollar will rise in relation to the French franc if:
    a. The U.S. demand for French wine increases.
    b. The Federal Reserve buys government securities.
    c. Prices rise faster in France than in the United States.
    d. The French demand for Kentucky bourbon decreases.
    e. Many Americans decide to visit France.

14. If exchange rates are allowed to fluctuate freely and the U.S. demand for Japanese yen increases, which of the following will happen?
    a. The U.S. balance-of-trade deficit will increase in the long run.
    b. Americans will have to pay more for Japanese goods.
    c. The dollar will appreciate.
    d. The Japanese will have to pay more for American goods.
    e. It will be more expensive for the Japanese to buy American real estate.

15. If a nation chooses to specialize and trade, which of the following situations could be expected to occur as a result?
    I. Increased standard of living
    II. Increased resource availability
    III. Increased quantity and quality of products
    IV. Lower prices
    V. Fewer domestic jobs

    a. I only
    b. I, II, and III only
    c. I, II, III, and IV only
    d. I, II, IV, and V only
    e. V only

Use the information in the following chart to answer Questions 16 and 17.

	Corn (per acre)	Cotton (per acre)
Egypt	400 bushels	500 bushels
Venezuela	300 bushels	200 bushels

16. In the absence of international trade, in Egypt the opportunity cost of production of one bushel of cotton is:
    a. One bushel of corn.
    b. 1.25 bushels of corn.
    c. 0.8 bushels of corn.
    d. 400 bushels of corn.
    e. Impossible to determine from the information given.

17. If Egypt and Venezuela begin to engage in international trade, then:
    a. Egypt will export corn and import cotton.
    b. Egypt will import both corn and cotton.
    c. Egypt will export both corn and cotton.
    d. Egypt will import corn and export cotton.
    e. It is impossible to determine which country will import and export which product.

SAMPLE MULTIPLE-CHOICE QUESTIONS continued

18. The chart below shows how many hours it takes to produce a pound of rice and a pound of corn in Japan and India.

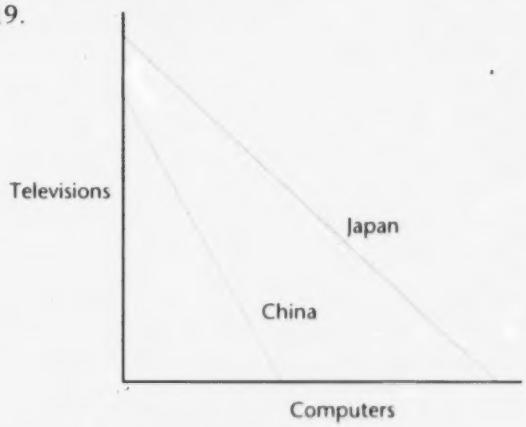
	Rice	Corn
Japan	5	3
India	6	3

Which of the following statements is/are true?

I. Japan has a comparative advantage in rice.
II. India has an absolute advantage in rice.
III. Japan has an absolute advantage in corn.
IV. India has a comparative advantage in corn.

a. I only
b. II only
c. I and III only
d. I and IV only
e. I, II, and IV only

19.



Based on the graph above, it can be concluded that:

I. Japan has an absolute advantage in computers.
II. Japan has an absolute advantage in televisions.
III. Japan has a comparative advantage in computers.
IV. Japan has a comparative advantage in televisions.

a. I only
b. II only
c. I and II only
d. I, II, and III only
e. I, II, III, and IV

20. All other things equal, an increase in a country's exports will:

I. Cause its currency to appreciate.
II. Cause its currency to depreciate.
III. Increase the cost of its citizens traveling in other countries.
IV. Decrease the cost of its citizens traveling in other countries.

a. I only
b. II only
c. II and III only
d. I and IV only
e. I, II, III, and IV

Sample Short Essay Questions

1. In a recent year, the United States had a huge balance-of-trade deficit. Comment on the following policies designed to correct the balance-of-trade deficit.
   a. Limit foreign investment by U.S. firms in other countries.
   b. Sell dollars so the value of the dollar goes down.
   c. Put high tariffs on autos, steel, and consumer electronics.

2. True, false, or uncertain, and why? "Tariffs actually increase domestic employment by reducing foreign competition and creating more jobs for American workers. Furthermore, more jobs mean higher incomes with which Americans can buy more goods from abroad. Hence, instead of reducing foreign trade, tariffs tend to increase it."

3. Assume that Liechtenstein and Andorra, with equal (and very few) resources, can produce the following:

	Grapes (kilos)	*Wool (kilos)*
Liechtenstein	100,000	100,000
Andorra	50,000	100,000

   a. Which nation has an absolute advantage in grapes? Why?
   b. Which nation has a comparative advantage in grapes? Why?
   c. Should Liechtenstein specialize in grapes or wool? Why?
   d. Should Andorra specialize in grapes or wool? Why?

4. True, false, or uncertain, and why? "If a nation has an expansionary fiscal policy and a contractionary monetary policy, the international value of its currency will appreciate."

*5. Assume that United States labor becomes more productive because of major technological changes.

   a. Using the aggregate supply and aggregate demand model, explain how the increased productivity will affect each of the following for the United States.
      i. Output
      ii. Price level
      iii. Exports

   b. Explain how the change in exports you identified in iii. will affect the international value of the dollar.

*Actual AP essay question from a past year.

SAMPLE SHORT ESSAY QUESTIONS continued

*6. Assume that in the United States, nominal wage rates rise faster than labor productivity. Analyze the short-run effects of this situation on each of the following.
   a. The general price level
   b. The level of exports
   c. The international value of the dollar

7. If the rate of inflation is higher in the United States than in other countries, analyze what will happen to:
   a. Exports.
   b. Imports.
   c. The international value of the dollar.

8. Assume that a worker can produce the following goods in the number of hours shown below.

	Mexico	*Canada*
Wheat	5 hours	3 hours
Oil	3 hours	2 hours

Why would Canada and Mexico trade with each other when one nation has an absolute advantage in the production of both wheat and oil? Be specific in describing what each country should import or export.

 *Actual AP essay question from a past year

Sample Long Essay Questions

1. The exchange rate between the Canadian dollar and other currencies has been free to fluctuate since the mid-1960s. For each of the following (in some cases hypothetical) events, indicate whether the value of the Canadian dollar in terms of the U.S. dollar will tend to appreciate, depreciate, or remain unchanged. Explain your answer. Use a supply and demand graph to illustrate each situation.
   a. Montreal hosts the Olympics.
   b. The rate of inflation in Canada increases relative to the U.S. inflation rate.
   c. Investors in Quebec purchase substantial real estate in nearby New England and New York.
   d. A consortium of U.S. oil companies constructs a pipeline in Canada to transport natural gas to the United States.
   e. Interest rates rise in the United States relative to those in Canada.
   f. New York and New England utilities contract to buy electricity from Canada's James River hydroelectric facility.

*2. The United States experiences an increase in exports due to changes in the tastes and preferences of foreigners for United States goods. As a result, the following occur.
   - The real Gross Domestic Product rises by three percent.
   - The inflation rate rises from five percent annually to ten percent annually.
   - The level of unemployment drops from seven percent to five percent.

   a. Use aggregate demand and supply analysis to explain what has happened in the economy.

   b. Suppose the Federal Reserve decides to sell bonds in the open market. Analyze the short-run effects of this action on each of the following.
      i. Interest rates
      ii. Output and employment
      iii. Prices

   c. Explain the effects of the change in interest rates caused by the Federal Reserve's action in b on each of the following.
      i. The international value of the dollar
      ii. Imports
      iii. Exports

   d. Now the federal government increases taxes while keeping its expenditures unchanged. Analyze the short-run effects of this action on each of the following.
      i. Output and employment
      ii. Prices
      iii. Interest rates

*Actual AP essay question from a past year.

SAMPLE LONG ESSAY QUESTIONS continued

*3. A series of natural disasters occur that cause the following changes in the United States economy.
- The real Gross Domestic Product drops by four percent.
- The inflation rate rises from five percent to ten percent.
- Unemployment increases from six percent to ten percent.

a. Use aggregate demand and supply analysis to explain what has happened in the economy.

b. Suppose that the federal government, holding taxes constant, increases its spending and the Federal Reserve increases its purchases of bonds. Explain in detail the short-run effects of these actions on each of the following.
   i. Output and employment
   ii. Prices
   iii. Interest rate

c. Explain how exports and imports will be affected by the changes in output and prices resulting from the policies described in question b.

4. Suppose the European Union (EU) has decided to impose trade restrictions on agriculture and some specific manufacturing industries. In fact, the EU had decided to reverse its decision to eliminate subsidies on some agricultural products of small farmers and to increase tariffs and quotas on the following key industries: steel, telecommunications, electronics, machine tools, computers, and aerospace producers. The EU hopes these actions will make Europe less dependent on foreign producers for these essential goods.
   a. Which groups will gain and which will lose from these proposed restrictions?
   b. What goals do governments intend to accomplish by imposing trade restrictions?
   c. What are some of the costs that result from trade restrictions?
   d. What would be the likely impact of restrictive trade policies on the total amount of trade between the EU and the rest of the world?
   e. Show graphically how subsidies, tariffs, and quotas restrict trade.

*Actual AP essay question from a past year.

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